PERSONNEL

IN THIS ISSUE

AMERICAN MANAGEMENT ASSOCIATION

For new perspective

on your personnel problems . . .

PLAN NOW TO ATTEND AMA's

MIDWINTER PERSONNEL CONFERENCE

FEBRUARY 13-15 • **THE PALMER HOUSE, CHICAGO**

So many and so varied are the facets of the modern personnel executive's job that it is often difficult to see the complete picture for the multitude of pieces. AMA's programs, based on the myriad "pieces" expressed by its thousands of members through correspondence and discussion, are planned to present a complete and integrated picture—the solution of specific problems, the interrelation of these problems, and the further relation of personnel activity to the broader scene of our social and economic life. For personnel administrators, the Midwinter Personnel Conference will include discussions of such key topics as:

- Profits and People: The Personnel Function of Management
- The fact-finding concept in labor relations
- Social and economic impact of the pension trend
- Main currents in union politics
- Communication—is management getting its story across? (latest trends in film techniques)
- A management approach to the problems of individual adjustment (A case history: For the first time Eastman Kodak Company tells of its new program to cope with human relations problems involving personal anxieties and emotions)
- Development of an employee activities program
- Is management losing the American worker? (a panel)
- Implications to American management of recent European history
- Effective applications of the role-playing technique

Featured also will be the Personnel Workshop Exhibit and, for the first time, a "Film Workshop" which will display the latest techniques in this valuable medium of training and communication.

PERSONNEL WORKSHOP SEMINARS

The Personnel Division's second series of intensive discussions will be held following the general conference—Wednesday-Friday, February 15-17, The Palmer House

• Ten discussion groups, registration limited •

AMERICAN MANAGEMENT ASSOCIATION
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Personnel

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.....Strictly personnel

National Suggestion Survey Points Out Trends

INDUSTRY is finding the employee suggestion plan an increasingly efficient tool in achieving better industrial relations, according to a nationwide survey, in which 312 companies participated, recently conducted by the National Association of Suggestion Systems. The survey reveals that 207 companies felt their suggestion program benefited them first through improved industrial relations and secondly through monetary savings effected. Ninety-three of the companies favored suggestion plans for just the opposite order of reasons named.

One trend which shows up in this latest N.A.S.S. study is toward more complete identification of employees who make suggestions. Most companies (125) require that suggestions be signed but hold such identification as confidential. Only 19 firms report their plans completely anonymous.

This trend toward identification again indicates that many companies are using the suggestion system as a human relations tool, feeling that when identity is known an effort can be made to iron out misunderstandings. In this vein the survey reports that personal letters and interviews lead the methods of telling employees their ideas have been declined. All respondents use one or the other.

The industries covered in the survey employ over 2,500,000 workers, and 134,007 of these employees received $2,337,337 in award money for their efforts.

Tabulation revealed that the majority of companies (226) set no limits on awards. The next most favored amount is $1,000, and from there the maximum ranges from $15 up to $10,000. Sixty-three firms reported that they had made changes in their award procedures since their plans were inaugurated; and nearly all these revisions consisted of a more liberal policy in awards.

Strikes Cost Workers $3 Billion in Wages Since 1937

More than 25 million workers have been directly involved in strikes since 1937, according to an analysis of wage losses from strikes, recently completed by the Conference Board. These workers "spent about a third of a billion man-days away from their jobs because of strikes," the Board points out, "and forfeited about $3 billion in wages alone."

The direct loss to workers on strike amounted to at least $25 million in wages each year since 1937, according to the analysis.* "Even during 1943 and 1944, when patriotism, government intervention and public sympathy tended to reduce the number of strikes, wage losses accruing from strikes totaled more than $100 million and $70 million, respectively, in the two years. An increase in strike idleness since the end of the war, combined with the higher hourly wages paid to workers, has resulted in wage losses in excess of a third of a billion dollars a year."

Strikes in manufacturing industries since 1937 have resulted "in more than 200 million man-days of idleness. This lost time represents approximately 60 per cent of the total man-days idle in the nation, although factory workers represented only about a third of all persons employed by private industries." Strike-induced idleness cost "nearly $1.8 billion in factory wages—about half of the total wage loss to striking workers in all industries in the 12 years 1937-1948." The analysis notes that, at current average hourly earnings (which are higher than ever before), this sum is equivalent to the aggregate earnings that would be lost by all factory wage earners in the United States if all manufacturing industries ceased to operate for about 14 working days.

Almost 80 per cent of the $1.8 billion wage loss was registered in the last four years of the period. Prior to 1945, strikes cost workers in manufacturing "about $45 million a year" in direct wages. "In 1937, when 20 million man-days of idleness were recorded, the resulting wage loss totaled about $108 million. In comparison, the annual wage loss in 1947 and 1948 aggregated $163 million and $197 million, respectively. The total time away from jobs because of strikes was, however, below the 1937 figure. The higher figures in recent periods, in spite of less time lost, reflect primarily the higher hourly wage paid to workers."

Labor-management disputes resulting in work stoppages cost non-manufacturing employees over a billion dollars during the period 1937-1948, according to the analysis.

* This analysis, the Board notes, is limited to the *direct* wages lost by workers on strike (the only measurable quantity). It is intended "to indicate the trend in the cost of strikes in the absence of more comprehensive estimates."

"The bituminous coal miners lost over $619 million in the 12 years with the heaviest losses again occuring in the more recent years. The numerous stoppages from 1945 to 1948 resulted in 36 million man-days of idleness and the loss of $442 million in direct wages. In 1948 alone, the wage loss approached over $150 million. To earn this amount in the same year, all 445,000 miners would have had to work about 22 days. The 1949 coal strike, which began on September 19 and was at least temporarily halted on November 9, is unofficially estimated to have cost $5 million to $7 million a day in direct wages. On the basis of a three-day week, this would mean about a $135 million wage loss to miners in the seven-and-a-half week nationwide strike."

Civil Service Commission Encourages Cooperative Test Studies

FOR the past several years the U. S. Civil Service Commission has made its test materials available to companies in private industry when the use of these materials by industrial concerns would not conflict with the examination program of the Commission. Recently, a few firms arranged cooperative studies with the Civil Service Commission in which the companies have made use of tests prepared by the Commission and have in return furnished data on the value of these tests when applied in their own organizations. These cooperative projects have been principally in the fields of selection of scientists and engineers, and the selection of supervisory personnel.

Readers of PERSONNEL who have facilities for conducting such research and are interested in cooperative projects of this kind should write to the Test Development Unit, U. S. Civil Service Commission, Washington, D. C.

Offer Fellowships in Executive Development

FOURTEEN young business executives, largest group in the 13-year history of the executive development program of the Massachusetts Institute of Technology, will be awarded Sloan Fellowships in 1950. These fellowships, granted to outstanding young executives in a nationwide competition, cover a year of advanced study in economics and business administration at the Institute and are aimed at preparing men for higher executive responsibility.

The fellows will be drawn from both large and small companies in various types of industry throughout the country. The winners of the fellowships will participate in a special program consisting of seminars, classes, and field investigations aimed not only at increasing technical managerial skill but also at deepening their understanding of the social and economic implications of their work. They will study in the Institute's departments of business and engineering administration and economics and social science, and will have an opportunity to conduct a special investigation in some selected field of industrial activity such as finance, production, distribution, or labor relations.

Applications for the awards must be made by February 24. Recipients will be selected on a competitive basis by M.I.T. after consideration of the applicants' records and references, and consultation with their employers. Awards range up to $2,700 for single men and up to $3,700 for those who are married. Fellows will be in residence at the Institute in Cambridge from June 9, 1950, to June 10, 1951. Applicants must be between the ages of 30 and 35 and have at least five years' industrial experience, part of it in an executive capacity.

In discussing qualifications of successful candidates, Professor Gerald B. Tallman, director of the program, says: "Managerial ability, seasoned intellectual capacity, and a sensitivity to the social and civic implications of industry, as well as a high potential for industrial leadership, are the primary qualities upon which selection will be made.

"In addition, candidates must be graduates with good academic records from an accredited college or university. A majority will be graduates in science or engineering. The men will be on leave-of-absence from their companies and must have the enthusiastic support of their employers."

● If they complete their training on schedule, some 72,970 craftsmen will be added this year to the skilled labor force of American industry. This figure is revealed in a statistical bulletin compiled by the U. S. Labor Department's Bureau of Apprenticeship.

In addition to this increase, over 113,450 apprentices are due to complete their apprenticeship during the following four years—making a total of 186,420 additional craftsmen by the end of 1955. This estimate of expected completions is in addition to about 30,780 others scheduled to have completed their training during 1949.

Among the apprentices expected to complete their training this year, the greatest number will be in the carpentry trade, in which 13,344 are recorded for graduation, and an additional 1,913 in the cabinet-making craft.

BLS Employment Statistics Explained in New Report

The sources, scope, methods, and limitations of industrial employment statistics currently published by the U. S. Department of Labor's Bureau of Labor Statistics are discussed in a report just released by the Bureau.

The first section of this release discloses the number of establishments, the number of employees, and the per cent of total employment that is covered by the BLS sample in each of the eight major industry divisions. Also described is the method of estimating current employment by linking data for the sample group of reporting firms to a periodic accounting of total employment. Total employments counts, or "benchmarks," are obtained from data made available by the Social Security Program.

Users of government employment statistics will be particularly interested in the section devoted to the comparability of BLS employment figures with data published by the U. S. Bureau of the Census in its Monthly Report on the Labor Force and 1947 Census of Manufactures.

Part II of this report, entitled "The Measurement of Industrial Employment by the Bureau of Labor Statistics," explains the principal revisions in all employment data published by the Bureau, which were first announced in September, 1949.

The two major sections of the report contain the most current and comprehensive explanation of the Bureau's employment program that has been issued to date.

Copies of the realease may be obtained free from the regional office of the Bureau of Labor Statistics, 341 Ninth Avenue, New York 1, N. Y.

Who Wears the Pants in Department and Specialty Stores?

A FEMININE invasion of executive positions in department and specialty stores has taken place during the past decade, and today women occupy positions on every level of the executive scale. This was revealed by a survey of women executives in retailing, conducted recently by New York University's School of Retailing. The study covered 119 leading department and specialty stores, employing 6,910 executives.

Today, the survey disclosed, women have almost equal chances with their male competitors to win coveted promotions to a proportionately large number of executive positions in the retailing field. The stores cooperating in the survey indicated that, relatively, they have added over twice as many women as men to their executive staffs during the last 10 years. Women are currently represented as buyers, fashion coordinators, auditing-department managers, training directors, personnel directors, advertising managers, merchandise managers, and right on up to the top-management level.

In the 119 stores contacted, it was revealed that women constitute over 43 per cent of the current executive personnel and occupy positions in 25 of the 27 job classifications listed. Of the major operating divisions, the percentage of feminine executives is highest in the merchandise division (48.8 per cent) and lowest in general administration (4.4 per cent). Women practically monopolize the executive classifications of fashion coordinator (97.9 per cent), comparison-department manager (96.1 per cent), and training director (83.3 per cent). They occupy a majority percentage of the positions as auditing department manager (68.1 per cent), employment manager (60.3 per cent), special events coordinator (57.1 per cent), buyer (53.1 per cent), and personnel director (52.3 per cent).

On the other hand, the survey disclosed, women hold no positions in the executive classifications of general manager, and general merchandise manager. In addition, they hold less than 5 per cent of the positions as store manager, controller, president, treasurer, and display manager.

● Master agreements between several unions and employers are rapidly replacing the single employer-union contract, according to a new bulletin published by the University of Illinois Institute of Labor and Industrial Relations. Entitled *Master Agreements in Collective Bargaining,* the bulletin includes a discussion of multi-unit agreements in effect today, the reasons for this development, and their effect upon the public interest.

While nation-wide agreements are found only in a few industries, some kind of area wide bargaining is the rule in most of the country's major industries, the study points out. How far this trend will go, it suggests, will depend on public reaction.

"Past experience indicates there is less chance for a strike," it is pointed out, but if a strike does occur the public is likely to suffer more discomfort and inconvenience. This may result in a call for government intervention.

The bulletin is available upon request to the Institute of Labor and Industrial Relations, University of Illinois, 704 S. Sixth Street, Champaign, Ill.

HOW TO TALK TO JOE DOAKES (CIVILIAN)

Some Lessons in Employee Communications from the Experience of the Armed Forces

By WILLIAM EXTON, Jr.
Captain, USNR (Inactive)*

A major benefit of a sound employee communication program is the "credit" it establishes for emergencies. Experience in the Armed Services shows that you can create a "communication credit" by maintaining a long record of sincere communication, so that employees will come to rely on your statements instead of getting their "dope" from the "scuttlebutt."

THE other fellow's problems usually seem easier than your own—probably because you're not too close to them. But frequently his problems and yours are fundamentally the same—only the basic similarity is hidden under the surrounding detail, circumstances, and conditions until the problems appear to be quite different.

It has often seemed to me, since I left the service, that some of my friends, colleagues, and clients were so buried in the details of certain problems that the basic elements and factors were escaping them. But other examples of the basic principles involved, clothed in unfamiliar terms and environments, often helped to clarify values and to identify the significant matters.

BROADER PERSPECTIVE NEEDED

With management facing many problems at the bargaining table today, such as varied fringe benefits as well as higher wage and shorter hours demands; with labor insisting on "ability to pay" as a factor in setting wages, and otherwise invoking "economics" in various forms; and with profit sharing, "joint management," and union participation in management following retirement and other special benefit plans over the horizon, management needs all the perspective it can get. So here is a picture of how your hired man, Joe Doakes, looks in bell-bottomed trousers.

Joe Doakes in overalls in your shop, and Joe Doakes in dungarees aboard ship off New Guinea—or in fatigues on a Normandy beach, for that matter—are the same guy. The only real change is in the job and environment.

You have to handle Joe today, and *I* had to handle him a few years ago. Maybe you have troubles. Quite a lot of officers had trouble with Joe and his 15 million or so pals—but quite a few officers had almost no trouble worth telling about. They thought a lot of Joe, and got along fine with him. Some of us learned something about how to talk to Joe, and how not to—and what we learned may be of some use to you now. And, after all, the other Joes that work for you are pretty much like Joe Doakes, so what goes for him should go for them too.

Yes, I know we had Joe in uniform, and he had to salute and say "Sir!" and do what we told him—or else. Yes, I know it didn't matter if he liked it or not (or if his officers did either, for that matter, most of the time). There were things that *had* to be done, and nobody could just chuck the job, or quit, or do whatever

* Consultant to Industry in Human Communications and Training.

else he felt like doing. We had discipline, it seems, and authority; and Joe was stuck with it. No shop stewards, no grievance committees, no unions—only Joe! That makes it sound easy, Mr. Employer, doesn't it?

THE KEYSTONE OF EFFICIENCY

Well, remember this: Efficiency *demands* cooperation. Whether in the navy or the army, on a chain gang or in industry, you can't get anywhere without *some* cooperation. When you have to stand over each man in an outfit and tell him what to do every minute, you are licked.

When Joe got sore he got stubborn, and somehow he just forgot how to cooperate. Joe didn't disobey orders—not Joe! That might get him into trouble. But if Joe was in one of those moods, somehow lots of things just didn't get done because there weren't enough officers and petty officers to stand right there and command Joe in detail what to do and how to do it.

In almost no time at all it would become very, very plain that the outfit wasn't running right. And so sooner or later they changed whoever was in charge. Nobody called it a strike, or a sit-down; if they had that would have been sensational, and the papers would have screamed about a mutiny or something. No, Joe wasn't "on strike"; but a great big chunk of him sure stopped working while the rest was saying "Aye, aye, sir!"

Now that was how Joe acted when things could still be put up with. But—and this was rather rare, all things considered—when Joe decided he'd *really* had enough, that was it. He quit, all right! He deserted, or went A.W.O.L. (Absent Without Official Leave), or he stayed overleave—days and weeks. So he got put into the brig or guardhouse, and had to be tried by court martial and punished, and everybody was very unhappy about it—especially Joe. And meanwhile nobody got any work out of him. And if too many Joes got in trouble in one outfit, everybody used to figure there was something wrong with the way that outfit was being run; and maybe they'd put in new management.

THE ANSWER—ADEQUATE COMMUNICATION

Joe would eat pretty poor chow and not gripe too much, until he got a chance to try the chow on another ship. If that was worse, he came back happier. But if it was better, he came back aboard his ship and told the world. Maybe the skipper wouldn't hear about it right away, but if he was on the job he'd pretty soon notice something in the men's attitude; and if he was smart he'd start trying to figure it out. Finally somebody would tell him—his yeoman, or his mess attendant, or his favorite signalman, or some officer that got the dope straight from the scuttlebutt. And then the chow better get good! But, on the other hand, if you *had* to be at sea for months, living off your dry stores, and Joe knew it couldn't be helped, he didn't gripe more than enough to keep in practice; maybe less than his officers.

Similarly, if there was "liberty" and beer for anybody, Joe wanted his share at least; but if it couldn't be had and he knew it—really knew it and believed it because it was so—Joe was pretty reasonable about it. So the answer is simply to *help Joe to know what he needs to know to make an intelligent adjustment* to the situation. Tell him the facts.

Everybody, almost, likes to talk. They may not know what they are talking about, but that very seldom stops them, as you have probably noticed. They will speculate endlessly about things, until somebody's "idea" or "theory" becomes an "accepted fact"—accepted, that is, by a lot of people who don't know. Then, later, when the *actual facts* become available, there is a problem of re-education and readjustment; and some people will just never in the world believe the truth be-

cause they have taken such a fancy to some "fact" they have dreamed up—or heard from somebody else that dreamed it up.

In the spring of 1944 I was an observer aboard the third vessel in a column of a dozen or so amphibious craft sailing out of Chesapeake Bay into the Atlantic on an overnight training cruise. When we were only some 20 miles out, the leading vessel exchanged blinker signals with a small patrol vessel stationed in that area, and then we turned around and came back into the Bay; we were all wondering why. Within half an hour of this change of course I was told unofficially, but as a "fact," that the patrol vessel had reported the presence of three German submarines in the vicinity, and that we had put back for this reason. I tried to find the source of this statement, and was unable to establish it, except that it was "true." As soon as I had an opportunity, I asked the officer who had been commanding the column why he had ordered the return. He explained that three of the vessels in the column had reported mechanical or engineering difficulties, so he had judged it prudent to turn back. Not a submarine in the picture! I suggested to him that in the future, when changing established plans, he give the reason; unless there was some good reason why he should not. I'm sure that principle goes for industrial situations, too.

Joe *will* talk, and if he has no facts, he'll talk anyhow. So you have rumor, speculation, misinterpretations, wrong impressions, impugned motives, and any number of other varieties of "bad communication"—for lack of facts. Some of them cause a lot of trouble. You can eliminate a very large part of this by giving out the dope yourself—as soon as possible, as fully and frankly as possible. If your motive is unadulteratedly to inform, Joe will appreciate it. The more you do it, and the more Joe sees that your statements can be relied on, the more confidence he'll have in you. You will be building up a "communication credit," and that's a very good thing to have—in the Armed Forces or in industry.

A CASE IN POINT

Let's look at an example of how this applies in practice, as a routine policy.

On a battleship, you might notice a lot of difference in the way one 16-inch gun turret runs as compared with another identical turret *on the same ship*. Both of them are as alike, mechanically and organizationally, as science can make them. But the hundred or so men in Turret B just aren't performing like the hundred or so men in Turret A—with the same jobs, same chow, same bunks, same everything—except, maybe, the way they're being led. (Maybe you have departments like that.)

Now, mind you, the lieutenants and ensigns, and the turret-captains, gun captains and other petty officers of Turret B all have precisely the same authority as those of Turret A; and I'll give you long odds there's no measurable difference in the *average* of the men under them. But Turret A wins an "E" for efficiency, while Turret B produces nothing but disappointment, hard feelings, and personnel and material casualties.

The reason for this is a lesson learned by some open-eyed service people that should have the same significance in any civilian organization. There's management, and there's "communication," and there's leadership in the best sense of the word—all these and more—involved in the answer; and it doesn't depend on Navy Regulations, and you can use a lot of it in your shop.

It's obvious that the men in Turret A are not, as a group, deriving any special reward for their superior performance. They are not getting bonuses for target shots; there is no piecework involved. In fact, no matter how good they are, there is just about no way to "make it worth while" to them in terms of take-home pay. Nor are they demanding it.

And no matter how poor may be the performance of Turret B, its personnel will go right on eating and sleeping and getting recreation just the same as the Turret A crew. Obviously, there is a certain possibility of special promotions, commendations, citations—and even decorations; and on the other hand of discipline, demotion, and "extra duty" (compulsory unpaid overtime), but we are dealing with substantial differences short of these extremes.

Well, what is there in it for the Turret A gang? What do they get out of it? Why does their brightwork gleam, their paint look new, their teamwork excel that of the best drilled chorus? Why is their mechanical and electrical equipment always functioning efficiently? Why are they cheerful, and comradely, and respectful to their officers? Why will some of the lads even turn down promotions just to stay with the gang? Why are the officers proud and assured, and eager to tell you that they have the best men in the Navy in their turret?

Mighty pretty picture, isn't it? You'd like it like that in your setup, wouldn't you? Maybe you think it's because there's no union in the picture. Well, maybe; but if anybody started to organize a union on board—Navy Regulations permitting!—where will they dig up the most members? In Turret A or Turret B? And where will the union have the most numerous and legitimate grievances?

There's a lesson here; it's an old one. It's in terms of leadership, and morale, and esprit de corps, and job satisfaction, and other components that are never fully defined or completely described or analyzed, but for which *there are no lasting substitutes.*

If I had to try to find one label for it, I'd say the whole subject boiled down to "communication." Sure, there's respect for and confidence in leadership here; there's loyalty downward and upward; there's satisfaction in belonging to a "top notch organization"; there's the comradeship based on join success; there's gratification for the ego in being a functioning part of an outstanding, efficient operation. And every bit of it is based on communication: on getting across ideas and attitudes and feelings; on sharing them effectively; on building and maintaining them; feeding and supporting them; establishing and adapting them. The members of that outfit *know!* They are not the victims of doubt and wonder and hesitation and suspicion and bewilderment and fear and resentment, disillusionment and hatred, and the other sorry results of bad communication—or no communication!

They *know!* What they *need* to be told, they *have* been told. What they need to believe, they believe. What they ought to know, they know. And just as long as what they are told, and what they believe, and what they know, are all *true*—just so long is communication *good,* and the foundation for their success secure.

WHAT MOTIVATIONS ARE INVOLVED?

Please recognize now, that we have considered nothing that smells like an economic motivation. In the case we are considering, there is none. The superefficiency of Turret A is not based on economic motivation at all. But it is based on a number of other, very powerful motivations that no one can afford to ignore, especially in industry today.

What I want especially to point out is, that these other motivations are *not entirely independent* of the economic. They function in addition to it and separately from it, but they will not *for long* work counter to it. By that I mean that the men of Turret A have accepted the fact that efficiency will not pay off in dollars for them; but it pays off otherwise. A major basis of their morale—part of what they *know*—is that their officers will see to it that they get at least their full share of *whatever* rewards there *are* for their efficiency. If they ever begin to doubt that, heaven help Turret A!

Here's an example. The captain of the ship presents the officer in charge of Turret A with a dozen cases of beer as a sort of special prize, as they head in to anchor in a hot, dry atoll. Now, what happens?

That officer calls in the leading petty officer of the turret—the senior enlisted man. He says: "Chief, the Old Man has given us a dozen cases of suds for what we did to that beach-head at Iwo. That's roughly three cans per throat. The officers can get theirs anyhow, so split her up among the boys when you get ashore."

Or: "We'll have a party—put some men in charge, and see to it nobody gets more than their share." He may even say: "Put aside one case for the officers, and give the boys all the rest." Or even: "We want new fittings for those salvo latches. Take a case down to the machinists if they'll turn them out for us before next inspection."

PLAY FAIR!

Any of the above will get by as good teamwork. But you can figure out for yourself what happens if the officers drink it *all* up, or give it away, or sell it, or do other than share it equitably with those who actually did contribute importantly to winning it.

Again, if the men of this Turret A learn they've missed out on any sort of special break that Turret B got, they'll resent it particularly because they have extraordinary confidence in the ability and determination of their officers to get them whatever benefits may become available.

The moral of this is clear: Those who strive and perform *extra well* for *non-economic* motives will be demoralized if they find that they do *not* receive resulting economic returns which they have helped to earn. Play fair!

Now, communication comes back into the picture here again, in a big way. The Turret A boys are sitting on the beach having their beer, when along comes a sour swab from Turret B.

"You suckers!" he taunts. "All those extra drills and sweat—for what? So the officers can run off with the beer! Sure—you get a lousy three cans each—but what's *that?* The Old Man turned over *thirty* cases—and *you* didn't see but *twelve* come ashore with you!"

Well, is it or ain't it? Those who believe this troublemaker will slack off, and efficiency will suffer plenty. Those who don't may still wonder and be suspicious. Turret A may fall off a lot, and many will wonder why. Somebody better take the trouble to find out the facts and make them known; and if they don't, Turret A may be done for as an outstanding outfit—all for a bust in communication.

BUILDING A "COMMUNICATION CREDIT"

Now, how is such damage prevented or stopped? By a long record of good communication, a sort of credit is established. If the credit is high enough, statements contrary to it will not be believed without proof. ("Chief Poke never lied to us yet. He said it was 12 cases, and that's good enough for me!" or "Lieutenant Brindle just ain't that kind o' guy! You been around long enough to *know* that, too!") Thus a major benefit of good communication, in addition to its continuous contribution to efficient current functioning, is the credit it establishes for emergencies.

Your civilian employee works for pay, obviously; and he's pretty generally interested in more pay. So you can say he's economically motivated. But you are interested in getting a wholehearted, efficient, cheerful, ever-improving day's work out of him even when there is no obvious, impending special or extra or additional reward. And whether you get it or not depends on this very thing I've been talking about: non-economic motivation. And that involves communication. Non-

economic motivation is very vulnerable to suspicions of exploitation, discrimination or "advantage-taking." You can use a "communication credit."

I think there's one mighty big lesson in all this, with Joe, the civilian, and all his pals yelling their heads off nowadays for their full share of everything and then some. I don't blame Joe a bit, though I'm beginning to wonder who's going to convince him when he's due back aboard for steady cruising.

When it came to convincing Joe of the necessity for anything he didn't like, such as why you had to have Spam for Christmas dinner, or why the ship couldn't be ordered to Sydney for leave for all hands even after two solid years of New Guinea and the Solomons, or why something equally hard to take—well, you had to be mighty convincing! Joe isn't easy to fool. And if you do manage to fool him once, he'll find out—and he'll never forget. And above all, never try to fool Joe about the responsibility for mistakes. If you were at fault yourself (or any of your "officers"), there's just one thing to do: Come out and honestly admit it! Joe has to respect you; he has to have faith in you. He has to believe in you to believe you, if you know what I mean. He knows if you're a straight-shooter; fair-and-square; a "right" guy. If you're not, there's really no use trying to tell him anything that isn't self-evident. And if you are, you better stay that way. He doesn't care nearly so much how tough or exacting you are; how high and difficult of attainment your standards of performance may be; even how "regulation," "taut" or strict you have been. He may even take a certain pride in sailing with a "tough" skipper; but only if that skipper is fair—only if he lives up to Joe's standards of honesty and responsibilty (and ability, too!) in authority.

TELL WHAT NEEDS TO BE TOLD

Now Joe is working for you. Joe will be deciding one of these days that he rates better chow, more beer, longer leave and what not than he's been getting. Maybe he does rate it, if anybody does. That'll be for you and him to decide. And before, during and after the decision you're going to need to "communicate" with Joe, or he will get all his dope from the "scuttlebutt"—and nobody knows who will be putting it there.

Remember, there are all kinds of "sea-lawyers" nowadays, and bumboat people; and hustlers and bunco-steerers on the beach, waiting to whisper in Joe's ear. Some of these specimens have a special kind of angle, nowadays; they are deliberately trying to make trouble between you and Joe. Maybe Joe is wondering about your angle. They tell him you are out to fool him, gyp him; they try to put you on the spot with Joe.

I have the greatest respect for Joe, myself; and I sincerely believe he's fundamentally reasonable. If he works for you, you have a very great responsibility toward Joe, to help him stay reasonable—to keep him from getting "rumor-happy"; to let him know what he "has a right to know." If he gets unreasonable because you don't tell him something he ought to know, that's *your* fault.

And when you tell Joe anything, please don't have an "angle"—please don't think you're going to "handle" him in any frightfully clever way. There's always somebody in any crew can spot an "angle" by radar. All you'll do is foul up the whole ship's company for the duration.

Communicating with Joe is fundamentally simple; it's only the way some people try to do it that makes it seem complicated. The troubles arise not from inherent difficulties, but almost always from violation of the basic principles of sincerity, clarity, and objective, intelligent fairness.

Just figure out what you'd like to know if you were Joe—that ought to be easy—and then get the straight dope right to him. Joe'll appreciate that; Joe'll like it that way. And first thing you know, the Commodore will be over to compliment you on the morale aboard, and pat you on the back for real leadership.

THE ENGINEER AND HIS PLACE IN INDUSTRY

A Re-evaluation Problem for Management

By ALFRED SKROBISCH
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Creative engineers are characteristically unsuited for executive posts, but industry persists in rewarding its best engineers by eventually promoting them to the executive positions for which they are poorly equipped. Here is a critical examination of this paradox, with a number of proposed solutions.

BASKING to a small degree in the light reflected by the war-boosted scientist and, to a much greater degree, in the light of his own magnificent achievements of the war years, stands the engineer in the postwar world. Of course, his existence was well recognized before the war and, indeed, his place in industry had reached a sort of stability, uneasy though it seemed to those who pondered his problem. In view of his present importance in the rebuilding of a tattered world, it is time that his position in industry and his relation to it be re-examined in the light of a tremendous amount of research and evidence pertaining to his characteristics which have been accumulated over the last 20 years.

Let us review briefly the engineer's present place in the industrial setup. When engineers are in demand, as they are now, the engineering school graduate can look forward to a job which will in general pay better than any corresponding beginning job for a liberal arts school graduate. As he gathers years of experience, he will be paid increasingly higher salaries by the same employer or by others. Of course, if times are bad he may be summarily laid off. If this does not happen, and he continues to do his work well, he will eventually reach a point where, as an engineer, he is earning all that management seems to believe an engineer should be paid. At this point, if he has become a top design or production engineer, he will be promoted to an executive capacity where higher rates of pay are considered appropriate.

He will be promoted primarily because management wishes to make use of his talents and experience in guiding a design group or a whole department; the additional pay is the incidental reward due him for the heavier responsibilities thrust upon him. If he is indeed a talented design or production engineer, then, by his promotion, management has done the company and the engineer irreparable harm.

For many years now the study of man's innate abilities has occupied staffs of brilliant investigators and students. The determination of these aptitudes has reached the stage where it is increasingly possible to specify with high accuracy the aptitudes required by a certain type of work or to mark out the preferred field of work for any man according to his aptitudes. As a result of tests conducted over 20 years or more on hundreds of thousands of men and women, it is now becoming increasingly clear just what are the proper aptitudes characteristic of, for example, an executive, a salesman, or an engineer. It has also become quite clear that personal happiness and contentment with one's work depend on the use of one's aptitudes and that the attempt to work in other than the indicated fields will cause,

at the least, a permanent disatisfaction and a discontented life and, at the worst, severe emotional and mental disorders. Of course, applying one's aptitudes will not guarantee success and large financial rewards in life; there are too many chance factors in human existence. It will, however, prevent the feeling that one's life has been somehow misdirected and futile.

The years of research in this area have shown us that any person's most suitable field of endeavor is determined by a combination of the existence of certain aptitudes and the absence of certain others. Equally important, the researchers have found, is the determination of the type of personality, i. e., its objectivity or subjectivity. The objective type works well with others and can develop into a satisfactory leader or executive. The subjective type works best by himself or in small groups and, in attempting to be an executive, is uncomfortable at the best and, at the worst, downright miserable. No amount of training or study can make a good administrator out of a subjective type; it can only make him somewhat less bad.

It should be pointed out here that few people are what could be called "all subjective" or "all objective." Most are at some point between the two extremes, and only about one person in four is so definitely subjective that it is advisable for him to observe rather closely the rules for his type.

THE ENGINEER TYPE

If we now examine the aptitude and personality requirements for engineers as determined by years of testing of thousands of men, some of whom are leading engineers, some of whom finally abandoned engineering after working at it for a while, and some of whom stepped from engineering into administrative posts, not always in the industrial field, we can learn just what it is that makes the typical "good engineer."

To begin with, he has the aptitude for "structural visualization" or three-dimensional visualization. This is the ability to form a mental image of the full, rounded form of any object from impressions received from drawn views or disassembled parts. Not only engineers but surgeons and watchmakers, for example, require this aptitude. It is an essential for all engineers, even chemical engineers.

Our typical "good engineer" must have a great deal of the aptitude known as "creative imagination." The possessor of this aptitude is not one who can "get ideas" where others fail; he is just able to get them faster than others. Tests for this aptitude measure the rate of creative thought and not its absolute presence or lack. Everyone can think creatively, but some do it very slowly and others as if by a series of inspirations.

In addition, but of lesser importance to our present problem, the engineer can profit by such aptitudes as those involving "accounting" ability (which concerns more than mathematics and might well be called an "accounting for" aptitude) and also certain reasoning aptitudes.

Every bit as important to our "good engineer" is the fact that he has a highly subjective personality. He is among the one-out-of-four who are very completely so. When we add his aptitudes to his personality, we get a fuller picture of a man who prefers to work by himself (though he may be part of a group working on a large program with many aspects), who has his own ideas on how a job should be tackled or on what innovations should be tried, who can rapidly "think up" solutions or means to solutions for problems and try them out himself. This man is likely to be somewhat sensitive to criticism, although a hearty exterior may often mask this fact. While he may be a pleasant, sociable chap to his co-workers and

superiors, he is always happiest working by himself, doing his own creating and his own testing of his creations.

THE EXECUTIVE TYPE

Consider now the dominant aptitudes, the innate characteristics, of the executive. The same years of testing of many thousands of men, and women too, have made his aptitude and his personality requirements relatively clear. If he is to be an engineering executive, at least a moderate amount of structural visualization will prove valuable. He will then be better able to comprehend what the men of his department are working on. As an executive, he should not possess "creative imagination" as a marked aptitude. This well-tested fact may amaze those who have always thought that the good executive must have creative ability. He needs vision and imagination, true, but this is the more usually defined imagination—that which will enable him to appreciate the possibilities and future worth of developments devised by his staff. He must not do the "thinking up" himself for, if he does, he invariably tries to do the work of his subordinates himself, instead of administering their work, and thereby disrupts the morale and efficiency of his department.

And, most important, an executive should not possess a very subjective personality. In fact, the more objective his personality the better, for his decisions must be made without that deep sensitiveness to criticism which marks the subjective type. The executive's business is with men, above, below and at his level, and only the objective type enjoys such a relationship. The subjective type becomes uneasy and discontented in such an atmosphere and, besides running his department inefficiently, tends to shirk many of the personnel and policy decisions that must be made.

Basically, then, the facts of most concern here are that the good engineer is highly subjective and must possess creative imagination while the good executive is objective and should have little, if any, creative imagination. Of course, there are men with creative imagination and structural visualization who have objective personalities. These may make good engineers, but they will be very much more successful as sales engineers than they will ever be as designers or production engineers, for the salesman, too, is an objective type who, according to the tests, must have creative imagination. Furthermore, it is possible for an engineering executive to be successful at his work even though he has a rather meager aptitude for structural visualization if he recognizes his limitations and makes good use, as he should, of the advice of his technical men on decisions involving technical problems. These variations and many others, though interesting to explore in their own right, must not divert us from the main theme of this discussion, which is intended to explore the effects of the wide aptitude and personality differences between the good design or production engineer and the departmental or company executive.

THE AMERICAN TRADITION

In engineering departments, as in other departments of any company, it is customary to reward excellent service and natural abilities by increased pay and, finally, when sufficient experience has been gained, by promotion to an "executive" position. Such a promotion normally carries with it as well a further pay increase as a reward for "increased responsibilities." American tradition has made the "executive" position the standard goal of a large proportion of the so-called "white-

collar" group, which includes the engineer. Everything in his training and environment from boyhood on has tended to make the design engineer look toward his ultimate promotion to the "executive" position for which he is as ill-fitted as is possible for him to be.

Management, which may have originated it back in antiquity, is also a victim of what is now a firm American tradition. How many times have company managements selected a new chief engineer, for example, because he is "our best designer" or "our best production engineer" and then wondered why the engineering department was never again the contented, smooth-working group it once had been. There are managements which have studied and learned to appreciate aptitude testing and its significance but who are still groping for the answer to the problem such testing has now made evident. Management wants to know how it is to make good use of the abilities and experience of its best designers and production engineers in guiding the work of those departments if these men are by nature the most unsuited for the job.

Yet another problem rises from these facts to plague management. It must be remembered that the average engineer is one of the poorest-paid professional workers and often earns much less than a skilled tradesman. Management has customarily felt (the American tradition again) that an engineer was entitled to enter the higher pay brackets only upon his assumption of an "executive" position. If these excellent engineers are not to be rewarded with executive positions (and the concomitant of higher pay), then will it be possible to reward them with increased pay up to or beyond the level reached by their department heads without breaking sharply, even violently, with the American tradition of the pre-eminence of the "executive" job?

POSSIBLE SOLUTIONS TO THE PROBLEM

These problems are not insoluble; in fact, more than one solution can be proposed. All these solutions would part, in some degree, from the revered tradition of the absolute superiority of the "executive" position. Some solutions would appear so radical to management that they would be assured of heated opposition from a large segment of management without consideration of such merits as they may really have.

Let us consider first the plan which would, for example, pay a top design engineer as much as or more than his chief engineer receives on the theory that, as a designer, the man was as valuable or more so to his company than the chief engineer. Almost anyone connected with industry for a few years will know of or recall companies that have had such men. These men's compensation was invariably less than that of their chief engineer, regardless of the latter's degree of competence. This situation seems to involve a rigid concept which, if considered at all, is considered as axiomatic: It is that the chief engineer is, in some mysterious way, responsible for all the good work that flows from his department and that, without his presence as a combined spark plug and catalyst, the designers could not design and brilliant engineers would become dull.

Naturally, the above is an extreme view, presented for emphasis. In sober fact, the objective type who becomes a good chief engineer is indeed a jewel to any company but, by that very fact of his excellence as a chief, he should be less able as a designer than the top men on his staff. There is, then, something to be said for the theory that a top design engineer is just as valuable as a chief engineer, for the chief engineer, by attaining his position, has not proved he is more capable than the design engineer. He has merely proved that he is a different type of person, ultimately suited to a different job. Whether he is more or less valuable depends on the specific needs of the company. It is evident that such a view, if

acted upon, will bring with it many additional problems for industrial organizations as they are at present constituted. Shall the chief engineer determine the rate of pay of a more highly paid designer? Who shall have the responsibility for hiring and firing? What changes, both obvious and subtle, will it bring about in the relationship between the men? Which of these changes could be tolerated and which could not? This last question is posed from the viewpoint of all those firmly rooted in the tradition of "executive" superiority (and those include engineers as well as management). Were this viewpoint to undergo even a slight change, a number of problems might well lose their importance.

A variation of the type of solution offered above may also be worth considering. In this variation the form of remuneration may be made similar to that often set up for that other type of person with creative imagination, the salesman. Payment could be in the form of a salary plus commission. This is not to be confused with the well-known profit-sharing arrangements used by many firms. The profit-sharing plan aims to give all employees, or some selected group, a share in regular company profits. The engineering commission would be based on savings due to lowered production costs on existing models (because of design improvements) and on new models and designs. In this way commissions, if based on a fair percentage, may reward the design engineer who cannot now rise financially above a certain level without becoming an executive under the present rules of the game. Obviously, there would be many problems under such an arrangement that would require fresh thinking by both management and engineers.

The author wishes to present now what seems to him to be a solution which, while quite far-reaching in some of its effects, may nevertheless have the best chance of acceptance by both engineers and management. It is firmly based on the proved fact that a design or development engineer and an engineering executive are two distinct types of persons whose natural fields of activity are not identical but complementary and who are equally important to the industries they both serve.

To avoid being accused of putting every personality strictly on a black or white basis, let us acknowledge immediately that there are many shades of gray as well and it will be found that this solution allows for them all. The extremely subjective engineers (usually the best designers) had better continue as individual workers in a company. Those somewhat less subjective can aim toward being project engineers, for example, as their highest step in the executive field; and those of the more objective type would aspire to the chief engineer's post eventually, a truly objective position. However, by means of the solution to be presented it will be possible for even the most subjective engineer to reach the chief engineer's level (but not his job) if his talents merit it.

To operate in its most efficient form, this solution depends on the recognition by engineering schools that a large number of their students are characteristically unsuited for executive posts at any time in life. All students, if they have not already been tested, should be tested at the beginning of their freshman year and advised clearly in which path their future success and personal happiness lie. Thereafter, during their studies, the students should have the option of electing certain courses which will be of aid to their particular type of future. The subjective-creative type may choose to specialize in certain highly technical aspects of his field. Another with a good vocabulary and one or more of the "reasoning" aptitudes may take writing courses with the intention of fulfilling his natural bent toward technical writing. A third, definitely objective, can, if creative in type, study salesmanship or, if not creative, can study plant management in a direct effort to prepare himself for the future executive work he is by nature best suited for. Then there are those with more than one single set of aptitudes pointing out a single field, and these should have the opportunity to take the various electives

suitable to them so that in later life they may be free to choose the paths they may then prefer.

We have outlined above the part that engineering schools must play in this solution to the problem. The students may appreciate the school's efforts to clarify some of the mental haze that surrounds the average student's idea of his future but, as practicing engineers later on, the subjective ones, at least, may be rather unhappy at finding themselves asked to accept the fact that they belong at the tail end of industry's professional pay ranks. It is at this point that management must take part in the solution.

Management must realize that the major difference between engineering executives and design engineers is one of kind, not necessarily of degree, and that one may be as valuable as the other. Company employment departments which seek out engineers in schools must be prepared to state their needs in two groups, "executive" engineers and "creative" engineers (or "technical" engineers, or some other suitable term). The young men they hire will all be doing actual engineering work at the outset in learning the company's business, but their assignments will gradually tend to train them for the fields of work to which they will ultimately gravitate. There are companies which try to do something of this nature even now but without the benefit of having pre-tested and specially trained apprentices.

The last, and probably most important, point is that management must consider the "executive" and "creative" engineers as of equal value and of equal price throughout their careers. To take advantage of the talents and experience of a highly subjective designer in the guidance of the work of a department will require that "creative" engineers have a promotion ladder of their own paralleling that of the "executives." To illustrate this at just one level, take the post of chief engineer. It is an executive post, but management usually wants one of their best engineers in the job. The solution might be to have an "executive chief engineer" and a "creative chief engineer" (or call them what you will). The "executive" would be the actual manager and administrator of the department and the "creative" would be responsible for advising upon and guiding the creative efforts of the designers. Or he could be a technical consultant to the executive chief engineer, and it might be advisable to call him that. We might have a separate promotion ladder then—technical consultants to the project engineer, to the chief engineer, to the vice-president. All these consultants would be talented designers, highly subjective, who are by nature unsuited to managing men but whose abilities make their opinions and decisions on technical matters of prime importance to company management.

The last-mentioned plan continues to make the "executive" type paramount in rank though not in pay. There may be some argument for making the talented designer the chief engineer and giving him an "executive" assistant to run the department. A few companies have consciously followed this pattern and done so with success. Management's preference may depend on whether the greatest need is for an administrator or a creator.

The writer's solution to the problem, whatever the details of its final form, is offered as a means whereby management can escape from an old tradition, now scientifically outmoded, and, on the basis of surprisingly accurate tests, can learn to make the most efficient use of the technical talent it employs and to hire the specific talent it wants in the first place. It would remove much of the guesswork from one of industry's major problems and, at the same time, give engineers a new feeling of dignity and a happier appreciation of their position in the industrial world.

THE FUNCTION OF PERSONNEL MANAGEMENT

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Is personnel management a science, an art, or a social technology? It partakes of the nature of all these; from the viewpoint of education, it is a social technology which applies to human problems in industry the research contributions of scholars from various fields.

IN our economic society, particularly in the field of management and labor relations, there are many points of conflict. These maladjustments frequently arise out of the relation of the worker to his job, the relation of the worker to his fellow workers, and out of the general employment conditions. For example, workers may be placed in jobs for which they are not adjusted, labor may be exploited and misinformed by various types of leaders, or there may be no adequate machinery for settling labor disputes. Such conditions may cause unrest which often is expressed not only overtly in terms of strikes, but subtly in terms of listlessness, absenteeism, abuse of tools, and so on, creating what is called hidden cost in industry. Whatever is the cause of unrest, the result is lowered efficiency, strife between workers and owners, and loss of public good will.

Whenever there are serious maladjustments in any institution, it is necessary to focus attention on the problems involved for the purpose of solution. In attempting to cure the problems of unrest in industry, management has, in the main, developed a whole body of techniques which constitute the field of personnel management. These techniques are concerned with the procuring of an adequate labor force and include methods for locating the sources of labor supply, the devices, such as tests, interviewing, physical examinations and references, for properly selecting employees, and ways and means for intelligently placing and guiding the selected employees. After employees are selected, it is necessary to develop, standardize, maintain, and utilize them. Therefore in the area of personnel administration much emphasis is placed upon such factors as training, promotion, adequate wages, bonuses, pensions, vacations, recreational activities, intelligent grievanc procedures, and other morale-building techniques.

ORIGIN OF PERSONNEL ADMINISTRATION

It can be safely postulated that personnel management had its origin in this unrest and that its development is a normal consequence of conflict. Its purpose is either to eliminate unrest or to avert it—or to contribute to both these objectives. This statement does not assume that conflict between management and labor is natural or inevitable, but that conflict may be latent and become overt only in the case of certain types of institutional arrangements. In a broad sense, the interests of these two important factors of production are identical; in any concrete or

specific situation, however, their interests are frequently in conflict. One of the basic assumptions of personnel management is that, while struggle interaction is prevalent in industry, it is wasteful, and identity of interests can be realized. It is the main general function of personnel management to create an environment out of which more harmonious interests will develop.

Personnel management in a sociological sense, then, is an accommodation to a conflict situation. In other words, it is management's way out of difficult situations; it is an attempt to control unrest by substituting cooperation for economic conflict and thereby create congenial relationships between the owners of industry and labor. It is contended that these relationships would reduce friction to a minimum and bring about maximum production. Basically, personnel management assumes, either explicitly or implicitly, that the causes of unrest can be discovered and controlled. The personnel manager is like the doctor in that he locates and isolates the problem, determines the responsibilities or causes for the problem, and then applies the available remedies. In other words, the technique of control necessitates the discovery of principles underlying the creation, the development, and the maintenance of wholesome adjustments between management and labor. In fact, one of the primary functions of this discipline is to find instrumentalities that, if effectively used, will make the transition from conflict to cooperation. This reasoning explains why testing, job evaluation, interviews, proper placement of employees, and follow-up devices are today playing important roles in industry.

BOTH INDUSTRY AND LABOR BENEFIT

To the scholar in the field of labor and industrial relations, personnel administration in its present form developed largely through the efforts of management. Yet it would be fallacious to assume that, in the main, the changes it brings about in the handling of labor are due to altruism because this would be making a virtue out of a necessity. From the business viewpoint, however, it makes no difference whether or not the instrumentalities of personnel administration have been forced or motivated by acquisitive desires so long as both parties are benefited. Many of the techniques that have been introduced resulted from the pressure of society and the worker for greater economic security. Numerous problems caused by such conditions as the mechanization of industry, by accidents, by intermittent or irregular employment have affected the interest of the laborer in his job. Consequently, management has attempted to apply the philosophical concepts of justice in industry and at the same time to maintain efficiency. This has been difficult, needless to say, because a great number of ideas, while sound in an abstract and philosophical sense, create serious problems when a concrete application is tried. Today sick-leave programs, dismissal wages, pension plans and welfare funds are important items of labor cost. It would be fallacious, however, to consider such programs only from the standpoint of the initial and direct cost involved in their origination and development, because in many instances, in the long run, they are as advantageous to management as they are to the employees. They often become cost reduction factors because they cause an increase in employee morale, thus indirectly serving to lower labor turnover, absenteeism, the accident frequency rate, and waste, and to raise productivity. In this sense, personnel management minimizes costs of production and becomes beneficial to the workers, to management, and to the public.

As implied, personnel management is to be treated as a sound business policy and not as welfare work or middle-class humanitarianism. It recognizes the capitalistic society with the right to operate business for profit. In fact, it is an agent

to save the economy because it recognizes that it is essential to create a social and economic environment so that positive reaction to values may be obtained. Whenever the values allow such a positive reaction, the danger of radicalism is greatly reduced. Personnel management may be considered a part of scientific management, since both scientific production management and personnel management are concerned with maximizing production and minimizing costs. The former has emphasized the technical aspect of the problem, while the latter has been concerned with the manipulation of the human factor in industry in order to lower the unit cost of production.

A SOCIAL TECHNOLOGY

From the viewpoint of education, personnel management is not a science but a social technology. As such it attempts to apply the research contributions of scholars in various fields of study to the processes of production and distribution. For example, psychology contributes testing programs, analyses of the significance of unrest, etc.; physiology contributes information relative to disease and fatigue; statistics furnishes the tools for research; and sociology lends, among other things, a knowledge of morale, an analysis of attitudes and values, and an insight into the effect of cultural forces upon the behavior of the worker. The generalizations from these and other fields of knowledge are organized around the problem of maladjustment in industry.

Personnel management, with its numerous ramifications, has become necessary because of the progressive impersonality of industry. According to historians, this situation is largely the result of the industrial revolution which, among other things, led to the appearance of large factories, absentee ownership, and secondary relationships between capital and labor. In fact, the chief connection between management and labor for years was the "cash nexus." Personnel management, from one viewpoint, consists of a body of control mechanisms to restore primary relations in industry. It attempts to lessen the social distance which separates capital and labor in terms of understanding and sympathy. It acquaints the contending parties with each other's problems and assists in the elimination of suspicion with its attendant consequences. To some extent principles of mutual aid and religion are substituted for conflict.

AN ENLIGHTENED CONCEPT OF LABOR

From another point of view, personnel management serves as an accelerator of the trend toward industrial democracy. It is an application of the findings of psychology to employer-employee relations. Formerly labor was commonly viewed as a commodity, a means to an end: The price of the service rendered by the laborer, or his wage, like the price of other commodities, was determined exclusively by the forces of supply and demand. This idea placed the worker in the same category as the other factors of production such as land, raw materials, and machines. This meant that labor was bought by management at the lowest possible wage and kept upon this basis as long as the economic factors would allow. Scant consideration was given the welfare of the laborer. While from the economic standpoint labor is a commodity, in personnel management emphasis is placed upon the fact that labor is, in an important measure, an end in itself and must be subjected to different treatment than the other factors of production; that is, due regard must be given to the physical, moral, and mental aspects of the worker's personality

throughout his entire lifetime. Consequently, in the field of personnel management there is a substitution of the citizenship concept of labor for the commodity concept of labor. This new concept recognizes that production is a joint endeavor, and that workers are entitled to a voice in the pertinent problems of industry.

SOUND LABOR POLICY A PREREQUISITE

How well personnel management performs its functions is difficult to ascertain, but scholars in the field do not consider it a panacea for all industrial ills. The rapid extension of this social technology, however, suggests that it has won the approval of management. It is being recognized, especially by large mass-production industries, that materials for production are generally available, that capital is obtainable either from risk-takers or from their own surplus, that the methods of production are commonly known, and that successful production and competition depend largely upon the intelligent handling of the working force. The ultimate contribution of personnel administration will depend upon the techniques used and the sincere application of these in industry. Undoubtedly programs of personnel management cannot be substituted for a sound labor policy, nor can they serve as indirect methods of eliminating the necessity for collective bargaining; these programs must rather constitute an integral part of such a labor policy.

It is true that, as personnel management functions adequately, it brings about some modifications of the economic order. It assumes that economic laws function through institutions and these institutions must be so manipulated that a more equitable distribution of the values produced in the economic process will result. Furthermore, personnel management focuses attention upon the social concept rather than the individualistic concept of capitalism; i.e., in the immediate sense, at least, greater emphasis is placed upon production of goods to satisfy human wants and less emphasis upon the profit motive. Some of the emphasis in personnel work is upon welfare economics. While certain concepts which have long been basic and influential in the economic order will undergo some change, personnel management is essentially reformatory in nature. It is concerned with removing the defects in the system relative to employer-employee relationships, while maintaining intact the basic features of the economic order. It is an attempt to adjust these relations or activities to social changes and thereby establish industrial equilibrium. In fact, some scholars contend that personnel management functions to save the present economic institutions by preventing the growth of radicalism. An environment conducive to the development of positive reactions to the economic values is being formulated. While personnel management is no cure-all for industrial troubles, certainly it has, where properly administered, materially lessened strife in industry.

SELECTING PERSONNEL BY OBSERVATION

By BERNARD M. BASS
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A new technique which promises to improve the selection of candidates for managerial and sales jobs is the leaderless group discussion or "group oral performance test." This method, in which unsupervised discussion among the candidates is observed by judges from the sidelines, seems to measure factors which often cannot be assessed in any other way.

IT would seem that the closer a selection test situation comes to the true life situation, the more opportunity we should have to make predictions about the candidate's success or failure in the true life situation in which we are interested. Most paper-and-pencil tests which have been used to select executives have not been able to assess the all-important factor of the candidate's behavior when interacting with other individuals. The leaderless group test has been developed to do this job.

HISTORICAL TRENDS

The German military psychologists (1) appear to have been the first to consider the possibilities of assessing candidates for positions of leadership while the candidates were acting as members of groups. By 1938, they were placing candidates in real life social situations and observing them in action. For example, a candidate was ordered to supervise a group and lead it in carrying out a complex task while under observation by psychologists and army officers. No validation was attempted for this technique.

In 1942, the British Army introduced the leaderless test situation in which a group of officer candidates were assigned a task or asked to discuss a problem in a situation in which no leader was appointed. They were observed and rated by officer selection boards. The discussion approach was adopted for civilian use by Fraser (6, 7, 8). In Australia, Gibb (9) and Taft (13) made use of the leaderless group discussion, while in this country the Office of Strategic Services (12) reported using it. Mandell (11), of the U. S. Civil Service Commission, and Brody (5), of the New York Public Health Service, also described its use. Little quantitative analysis of the leaderless group discussion itself was attempted in any of these studies.

THE TECHNIQUE

There are many possible ways of setting up the leaderless group discussion situation. Common to all is bringing the candidates together for a discussion in which the company observers take no part except to give directions. The candidates may be asked to select a topic of their own and then to start a good argument among themselves, or they may be assigned either a technical or a general problem for discussion.

On the basis of his past experience, the writer feels that the problem to be discussed is probably not so important as the instructions given the candidates. The writer has emphasized in his instructions to candidates that they will be rated on how well they do *and* on how well the group does. Furthermore, they are specifically directed to prevent fellow participants from taking the group "off the

track" since their own ratings will be lowered if they allow one of the other group members to waste the group's time. Conditions are set up such that the situation is both competitive and cooperative, much like our true life social situations.

Eight candidates per discussion appears to be optimum (7).

RELIABILITY OF THE TECHNIQUE

An earlier investigation by the writer (2) indicated that a candidate's relative tendency to participate in the leaderless group discussion was fairly constant despite changes in the group or repetition of the situation at later dates. The same was true of the leadership ratings he was assigned by discussion observers.

In this earlier study, the writer found that the amount of time a candidate spent talking in a discussion correlated .87 with the time he talked in a discussion group with the same membership six weeks later. The "leadership" ratings assigned by a judge correlated .72 with the same judge's ratings of the same individuals six weeks later. Average intercorrelations among 20 judges' over-all "leadership" ratings of candidates ranged from .41 to .72.

When highly rated participants were placed together as a discussion group, those previously rated highest emerged as leaders. When poorly rated participants were placed together, those previously rated highest emerged as the leaders.

In a more recent study by the writer (3), 64 Ohio State University upperclassmen applying for sales trainee posiitons with the Mutual Life Insurance Company of New York or the Burroughs Adding Machine Company or for management trainee positions with the Procter & Gamble Company were organized into eight leaderless discussion groups. Each discussion group was observed by two company representatives. The eight members of a discussion group then underwent private interviews with two other company representatives. For a second discussion group the pairs of interviewers switched roles. Altogether eight discussion groups, four comprised of sales applicants and four comprised of engineering applicants, were observed in group discussions and individually interviewed. On the average, company representatives acting as discussion observers correlated .67 with each other's ratings of whether or not they would want to hire the candidates. Company representatives when acting as individual interviewers correlated .59 with each other. This difference in reliabilities was not statistically significant. Thus the same relative reliabilities held for representatives engaged in screening sales applicants as for those screening management applicants.

For all intents and purposes it seems fairly safe to say that over-all measurements made on the basis of one 30-minute leaderless group discussion are as reliable as over-all measurements made on the basis of eight individual standardized interviews by well-trained and experienced interviewers.

WHAT IS BEING MEASURED?

In this same study (3) candidates' discussion ratings showed a significant average correlation of .45 with the ratings they were assigned by the individual interviewers who were working independently of the discussion observers. Part of what was being measured in one situation was being measured in the other. It is the opinion of the writer that this overlapping was due to such factors as physical appearance, voice, manner, and bearing.

Company representatives thought the leaderless group discussion brought out such factors as initiative, aggressiveness, poise, adaptibility to new situations, tact, ability to get along with people, group acceptability of the individual, social awareness, alertness to group attitudes, feeling for the interaction taking place, ability to control oneself, leadership, public speaking ability, reaction in front of a

group, etc. Thus they felt that traits popularly ascribed to leaders were being measured. To some extent, their opinions were corroborated by some indications that earning high ratings in a group discussion was related to previous leadership experience. There was also a low correlation between ratings and a test of verbal intelligence, though leaderless discussion ratings seemed independent of scholastic standing.

Amount of participation by a candidate, as measured by the actual time he talked, predicted the tendency of observers to want to hire the candidate with a correlation of .65, while subjective measures of participation correlated .77 with these same observers' ratings.

This writer believes that amount of participation in a group discussion, structured by directions stated previously, is a good index of leadership status in this situation. Why? The leader or leaders who emerge in this situation must adopt certain tasks such as organizing, summarizing, clarifying, etc. In order to carry out these tasks in a verbal situation, the leaders must spend more than an average amount of time talking to the group. The "windbag" non-leader cannot contaminate this situation because the group itself, following the writer's instructions, will choke off any such non-leaders who attempt to talk too much without carrying out leadership tasks.

RECOMMENDATIONS

One important point must be brought out immediately. In order to get the best possible prediction from a battery of predictors, it is necessary for each of the predictors to be as independent of each other as possible. In other words, we want each predictor to measure some different aspect of what we are trying to predict.

The selection interview is a technique which most often suffers from overlapping with other predictors. Tests and biographical information blanks usually do a more valid and reliable job of measuring a candidate's intelligence, aptitudes, and interests. A multiple regression equation appears to be a better integrator of this data than does the average interviewer. The interview should be relegated to the measurement of those factors predictive of leadership success or success in sales work which cannot be measured by objective tests and biographical information blanks, in order to justify its continuance as a predictive measuring device.

The leaderless group discussion situation is a kind of interview which this writer believes may permit independence of measurement necessary to increase the validity of a battery of predictors. Present findings tend to indicate that the leaderless group discussion may be measuring factors such as tact, initiative, and other social skills which cannot be successfully measured by paper-and-pencil tests, and which often are not measured successfully in the individual interview because of the interference and *biasing* influence resulting from the interviewer's knowledge of the candidate's experience and tested abilities, aptitudes, and interests.

The lack of quantitative research on the validity of the leaderless group discussion must be emphasized. The kind of evidence needed could be gained from studies like the following:

Adequately motivated, newly hired supervisors in a large establishment could be subjected to a leaderless group discussion from which would be obtained over-all participation measures, *sociometric* ratings, and observer ratings of designated characteristics. In addition, candidates' behavior in the discussion situation would be classified according to such categories as initiation of ideas, giving or seeking of information, giving or seeking of opinions, elaborating, orienting, energizing, recording, evaluating, summarizing, etc. Benne and Sheats (4) have developed excellent techniques of classifying such behavior. Paper-and-pencil aptitude, per-

sonality, and proficiency tests, biographical information blanks, and projective tests could be included in the test battery. All those measurements and behavior categorizations would be pitted against various yardsticks of executive success including later ratings by superiors, peers, and inferiors of the supervisors, measures of group efficiency of the groups led by the subjects, measures of the morale of such groups, etc.

Statistical analysis using factor analysis techniques discussed by Guilford (10) would give not only prediction of executive success but also provide much insight concerning the behavioral factors associated with leadership success.

It is obvious that such a study or studies would be limited only to those establishments employing a sufficient number of supervisors and executives to guarantee reliability of results. However, progress in the solution of the problem of selecting successful leaders will depend upon such large-scale studies.

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A MERIT RATING PROCEDURE DEVELOPED BY AND FOR THE RATERS

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The most practical merit rating system is one which enables the supervisor to deal more effectively with his people, to raise their morale and increase their efficiency. In addition, the raters themselves must be "sold" on the procedure, preferably by participating in its formulation.

DISSATISFACTION with merit rating procedures is widespread. Direct evidence of this dissatisfaction is found in the many letters received by one of the writers after the publication of two papers on merit rating.* Less direct evidence of the dissatisfaction is the wide variety of rating forms and procedures currently used. It is as though each person tries a new version in the hope that one will be found to work.

The wide variety of forms in use suggests a widespread illusion concerning merit rating. It seems to be a rather common notion that if the proper rating form can be found the problems of merit rating will be solved. Properly conceived, merit rating is a procedure in which the rating form plays a relatively minor part in its success or failure. It is not the rating form but failure to take into account other important considerations that leads to the failure of, and dissatisfaction with, the ordinary merit rating procedure.

REASONS FOR DISSATISFACTION

Merit rating systems often fail because there is confusion of purposes. General purposes listed for the usual merit rating system commonly include: (1) to provide a basis for administrative action, such as promotion, layoff, or termination; (2) to help the supervisor deal with his people. It is the belief of the writers that these two types of purposes are not well served by a single instrument. Ratings which are to serve as a basis for administrative action must yield a valid measure of an individual's job performance relative to that of other individuals. The rating system must be designed especially for this purpose; in such a system the rating form or scale takes on particular significance. The most effective scale thus far devised for evaluative purposes is probably the forced-choice scale as developed by the Army and described by Sisson.** However, such procedures will probably be found of very little use in assigning work, in raising morale, or in helping people to improve. When our interest lies in helping the supervisor deal with his people, it will probably be found that a much different type of

* Bittner, Reign H. Developing an industrial merit rating procedure, *Personnel Psychology*, 1948, *1*, 403-433.
——— Developing an employee merit rating procedure, PERSONNEL, 1949, *24*, 275-291.
** Sisson, E. Donald. Forced-choice—the new Army rating. *Personnel Psychology*, 1948, *1*, 365-383.

procedure is required, one much more flexible and much more specific to a particular job.

Merit rating systems often fail because of confusion about what is to be measured. Traits included are commonly too closely related and so general that they become rather meaningless when applied to a person working at a specific job. It is not known how many traits should be included, though the available evidence points in the direction of few rather than many. It is also commonly believed that traits included in a scale should be fairly universal, that is, they should apply to people working in a great variety of situations. This is a reasonable assumption, and was shared by the writers until they developed the procedure described in this article.

Merit rating procedures often fail because the raters have had no part in their development. Any good rating procedure should: (1) help raters personally in dealing with their own personnel problems; (2) be one they can operate and handle with confidence. To insure that a rating procedure fulfills these conditions, those who are going to use it should participate in its development at the earliest possible moment.

Merit rating systems frequently fail because their procedures do not help the rater achieve the basic purpose of the scheme. It is not uncommon to find that the procedures involved in the system bear little discernible relationship to the stated purposes of the system.

Merit rating systems many times fail because of inadequate training of raters. Reaching an unbiased judgment of a person is a difficult and complicated task. Ratings, after all, are nothing more than the opinions of supervisors. Supervisors judge their subordinates whether or not they record their opinions. The only question is whether the opinions are arrived at after a fair and impartial consideration of the worker in relation to the job requirements. This takes not only a workable procedure but a considerable amount of training. It is the writers' hunch that lack of training is one of the major reasons for the failure of merit rating systems to yield worthwhile results.

Merit rating systems often fail because of management's inadequate understanding of the operating problems entailed. Merit rating takes time. If an interview is involved in the procedure, rating takes more time. Busy supervisors cannot be expected to do a good rating job unless administrative arrangements permit them to spend an adequate amount of time on it. If an interview is required, an additional operating requirement is a private place in which to conduct it.

Merit rating systems fail because raters are not sold on their value. The reasons for their lack of enthusiasm may be any of those listed above. If top management has not considered the process sufficiently important to allot enough time and space for it, the rater cannot be expected to devote full energy to it. If he has been given no training, he cannot be expected to understand what he is doing and what he may get from it. If the procedure is laborious and bears no discernible relation to the purposes of the rating scheme, the supervisor cannot be expected to be enthusiastic. If he has never been brought into its development, he cannot be expected to feel that the system helps him personally or to have very much confidence in the way it operates. If the supervisor is faced with the problem of appraising people on a series of traits that to him bear no apparent relationship to a particular man on a particular job, he cannot be blamed if he looks upon the whole procedure as a bunch of nonsense. If the purposes are so confused that none can be accomplished well, the rater cannot be expected to respect merit rating as a procedure.

The viewpoint outlined above has been developed more fully by Bittner in two recent publications.* The writers were recently faced with the problem of developing a merit rating procedure for a concern in which there was general dissatisfaction with the existing system. The causes of failure of merit rating programs cited above were accepted as pitfalls to be avoided in the development of this new procedure. It is the purpose of this paper to describe the development of the procedure and to evaluate its effectiveness.

THE RATING PROCEDURE

The procedure finally developed will be described only briefly since the rating method itself is not of major concern at this point. The way in which the procedure was developed and the raters' evaluation of it is our primary interest.

The rating method finally developed involved the following basic principles and procedures:

1. It has a single purpose, namely to help supervisors deal with their people more effectively.
2. It employs a simple rating form that serves merely as a convenient medium for recording information contributing to the basic principle.
3. Each rater develops for every job supervised a "job definition" consisting of a list of the important job performance elements which he will refer to in judging a worker's performance on the job.
4. Raters observe the employee's work with particular reference to the performance elements in the job definition.
5. Comments on outstandingly good or poor performances are recorded as they occur during the rating period.
6. At the end of the rating period, the rater's evaluation of the employee is recorded on the form in terms of a summary of the worker's strong and weak points, added training or experience he needs, and a simple over-all performance rating.
7. The employee is interviewed by the rater, who explains the rating to him. Plans are made to help the employee overcome his weaknesses.

DEVELOPING THE RATING PROCEDURE

The merit rating form, often accorded foremost consideration, was deemed of least importance in the development of the procedure. As has been indicated, it was little more than a convenient record form for recording the data which raters considered necessary to accomplish the purpose of the procedures. The form provided spaces for the following information: what the employee does especially well and what he does poorly; what added training or experience he needs to make him more valuable; a simple over-all performance evaluation by checking one of five descriptive phrases; day-to-day comments on outstandingly good or poor performances; the employee's reactions to his present job and to other jobs he might prefer; and the employee's signature indicating he has had the rating explained to him.

The aim of the procedure was deliberately restricted in order to avoid confusion of purposes. At the outset, the writers did not avoid this confusion completely but attempted to have the procedure serve administrative as well as employee progress purposes. It was our experience in this study that led to the final conclusion that the merit rating procedure should serve a sole purpose, namely, to help the supervisor in handling his people through (a) letting his subordinates know

* *Op. cit.*

where they stand with him, and (b) helping them improve by pointing out their weaknesses and strengths and planning with them how to remedy their weaknesses. Limiting the purpose in this fashion, of course, meant that we did not need to be concerned with any so-called scientific numerical schemes of evaluating people. We were not interested in tying the rating to any administrative action.

RATERS FORMULATE OWN DEFINITIONS

The problem of what to measure was solved by letting the rater decide for himself what was important for a particular job. The only requirement was that the decision be made in advance of the rating period. Each rater prepared a job definition for every job under his supervision. The job definition was merely a list of things required of the worker in order to perform the job efficiently. No limitation was placed on what could be included in this definition; a supervisor could define it precisely as he wished. Typically, the job definitions would involve such factors as very specific operations required by the job, ability to get along with one's own group, ability to get along with people outside one's own group where necessary, and occasionally certain character traits such as dependability where considered highly important.

The formulation of definitions for each job proved to be one of the most valuable aspects of the procedure. It is this part of the process that enables the rater to make the rating plan his own rather than one imposed upon him. He decides what elements of job performance should be rated.* He decides which pattern of performance traits best fits each job he supervises. He can even alter the pattern from rating period to rating period to conform to the degree of experience of his employees, changes in the job operations, his desire to concentrate on improvement in certain directions, etc. One of the outcomes of this procedure is that the criticism of the rating process which is so common when supervisors are required to rate people on a standard list of traits vanishes. Other desirable results of employing job definitions as a basis for ratings are:

1. Supervisors observe and judge a person on the basis of the concrete requirements for success on the person's job rather than on general traits.
2. Supervisors find a person's weaknesses and strengths highlighted when they appraise his performance in relation to the job definition and thus are in a better position to help the employee improve.
3. Supervisors find it easier to explain their rating during the interview when they talk to the worker in terms of the job definition.
4. Supervisors, many for the first time, analyze the real elements of success on the various jobs they supervise.

Raters were brought into the development of the procedure practically at the outset. A series of discussion meetings was held with the raters in each department. The writers outlined to the raters certain principles and a framework within which to operate, and the raters themselves worked out the details. The most important detail, probably, was the job definitions. Each rater devised a pattern of performance traits for each job he supervised, thus building a rating system which was his own. This step alone practically eliminated all criticism of the rating procedure. Obviously, if conscientiously done, the job definitions make it inevitable that the rating procedure will help the supervisor personally and that it will be one he can operate and have confidence in.

The problem of making the plan achieve its purpose was solved by letting

* Dr. Marion A. Bills, Aetna Insurance Co., reports in a private communication to the writers that her company's merit rating system permits the rater to choose the traits to be used in rating an individual.

the raters pass judgment on whether each part of the procedure did or did not contribute to the basic aim. It was put squarely up to the raters that every part of the procedure must help them in dealing with their people, and, if it did not do this, it could and should be rejected. Thus nothing was incorporated in the procedure that the raters did not accept as being helpful to them. For example, it became obvious that an explanation of the rating to the person rated was essential in order for the system to have any beneficial effects. Thus, even though raters customarily shy away from discussing merit ratings with those rated, these raters insisted on the post-rating interviews.

TRAINING THE RATERS

Raters were trained in the operation of the procedure in small departmental group meetings. A series of follow-up meetings was held after raters had had an opportunity to try the procedure. Though the training given in this case was probably more extensive than many raters get, it undoubtedly should have been even more thorough.

Operating problems were met frankly. It was recognized that the procedure would take considerable time on the part of the raters. Though this problem was not completely solved, efforts are being made to devise a solution. Two approaches are being taken: (1) spreading the ratings over a period of time; (2) relieving raters from their usual duties for one or more days while they complete the ratings.

The "selling" of raters on the program was a problem that was solved by indirect methods. Many raters apparently "sold" themselves on the worth of the procedure by discussing and formulating a procedure which they felt would be helpful to them. This in itself, however, did not sell all raters. Some skeptics had to experience the benefits to be derived from the system by actual trial of it before they were convinced.

EVALUATING THE PROCEDURE

GENERAL

A merit rating system of the kind described can be evaluated from two general viewpoints: one concerns its value to the rater; the other, its effect on the ratee. During the development of the system, it had been stressed to the raters that any part of the procedure should and would be rejected if it did not help the rater in dealing with his people. The primary question at issue, then, in evaluating the procedure is: Does this procedure help the rater in dealing with his people?

The evaluation was made immediately following the operating trial. A series of meetings was held with the raters. Raters were grouped in the same way as in the developmental part of the program. Each meeting was prefaced by an invitation to be hypercritical of the procedure. An opinion survey questionnaire covering all phases of the procedure was then administered anonymously. Results were tabulated immediately and used as a basis for a thorough critical discussion of the program. The discussion brought out nothing which was inconsistent with the results from the formal questionnaire.

The findings of the survey, which are presented below in detail, may be summarized as follows:

1. The merit rating procedure described is a *useful* and *workable* tool for aiding the rater in dealing with his people.
2. Raters derive many benefits from it, including greater ability to help their people *in specific ways.*

3. Raters believe their subordinates benefited from the program.
4. Defining what was expected from a person on a specific job, observing the person in terms of this definition, recording events as they occur, summarizing opinions at the end of rating period in terms of strong points and weak points, and the interview are all accepted as necessary and important aspects of the program.
5. Raters believe that, without the preparation involved in the steps preceding the interview, it would not have been so valuable. In other words, an interview with no preparation would not have contributed nearly as much.
6. Raters say that the procedure requires a lot of time, but they definitely feel it is worth it.
7. Not a single rater feels that the program should be abolished.

These general findings show that raters have "bought" the procedure. This acceptance is basic to the proper functioning of any merit rating system.

DETAILED RESULTS

The system described was tried in two factories, widely separated geographically. The same basic principles were utilized in both instances, though there were minor variations in the rating procedure. The greatest difference involved the method of obtaining an over-all judgment of job performance. In Plant I, raters ranked their people from 1 to N in terms of job performance and of promotability. In Plant II, a simple five-step, adjective scale of job performance was employed. This made for slight variation in the survey questions for the two plants. These variations are indicated for each question.

One difference between the two factories should be emphasized since it probably accounts for most of the divergence in the results. Plant I has been long established; both the raters and most of the employees have had considerable experience. Plant II is a new plant where a majority of both raters and employees are "green" at their jobs. This makes it natural for aspects of the procedure to be evaluated somewhat differently in the two places.

In the pages that follow, each question is given as asked in the survey. Below the question the alternative answers are given, together with the percentage of raters in each plant choosing each alternative. Where different alternatives were used in the two plants, this is indicated. Comments on the results are omitted unless some clarification in terms of the general presentation seems needed.

In Plant I, 57 raters completed the questionnaire; in Plant II there were 19 raters. The percentages given are based on these numbers. *You* in the survey questions refers to the rater.

Only four per cent (two raters), both in Plant I, said that no part of the procedure was valuable to them personally. These two later volunteered the information that they perceived values in the system, but because of their particular supervisory setup it did not benefit them personally. Apparently here is a procedure that has something of value in it for just about everyone, experienced or inexperienced as a supervisor.

For both plants the interview stands out as the most valuable single part of the program. No one here is willing to say that no part of the procedure proved valuable to him. Apparently the two raters in Plant I who previously said this have now changed their minds after giving more thought to it. The really significant finding is the choice of the interview as the most important element. The interview is the hardest part of the procedure, takes the most time, and raters generally like to avoid interviewing employees concerning their weaknesses. What has apparently occurred is that the job definitions, the observation, the summarizing of opinion, and other steps have so prepared the rater for the interview that he has confidence

What did YOU get from following the new rating procedure? Check as MANY statements as apply.

% Plant I	% Plant II	
39	79	I became more clear on what I expected from each of my people
56	89	I was better able to explain my judgment of job performance to each person
61	63	I observed my people more carefully
54	74	It put me in a better position to help my people improve in specific ways
23	32	I learned more about what my people expected of me
40	84	I found it easier to judge my people on the same standards
44	47	I learned more about my people's personal problems
5	0	The new procedure did not help me in any way

Which parts of the rating procedure did you feel were valuable to you? Check as MANY statements as apply.

% Plant I	% Plant II	
35	58	Making the job definitions
47	58	Making a point of observing all aspects of the work of my people
33	16	Writing comments at regular times
75	95	Summarizing my opinion under strong and weak points
—*	58	Giving my rating of over-all job performance
39	—*	Ranking on job performance
39	—*	Ranking on promotability
40	84	The interview
2	0	I did not really carry out the procedure well enough to have an opinion
4	0	No part of the procedure was valuable to me

* Not applicable at this plant

Which one element of the procedure was MOST valuable to you?

% Plant I	% Plant II	
9	0	Making the job definitions
7	5	Making a point of observing all aspects of the work of my people
7	5	Writing comments at regular times
28	11	Summarizing my opinion under strong and weak points
7	—*	Ranking on job performance
3	—*	Ranking on promotability
—*	11	Giving my rating of over-all job performance
30	64	The interview
0	0	I did not really carry out the procedure well enough to have an opinion
0	0	No part of the procedure was valuable to me
9	4	No answer

* Not applicable at this plant

in his ability to handle it. This view is confirmed by the next question, which concerns the necessity of the steps prior to the interview.

As noted in the previous question, making job definitions was considered a valuable part of the procedure by a substantial percentage of raters. Formulating the definitions does not get a large number of votes when the raters are asked to indicate the single, most important feature of the process. This finding may seem inconsistent with the writers' earlier statement that the job definitions are one of the most valuable features of the procedure, but this seeming inconsistency probably represents only a difference in viewpoint. From the viewpoint of the writers, it was clear that the thinking that went on in developing the job definitions brought a new appreciation of the problems involved and stimulated a new evaluation of job performance; it underscored the importance of observing and of consistency in evaluating; and it gave great impetus toward making the procedure work by making the system the rater's own. From the rater's viewpoint, the most important thing about the procedure is not what affects him but what affects his people most. Hence it can be understood that he would consider the interview the most significant feature.

Suppose the only requirement of a rating procedure was the interview. In comparison with the more complex procedure you have just tried: Check ONE for EACH question.

a. *Do you believe you could be as fair in your judgment of each person's job performance?*

	% Plant I	% Plant II
Yes	33	11
No	67	89

b. *Do you believe you could be as helpful in aiding your people to improve?*

	% Plant I	% Plant II
Yes	30	21
No	70	79

c. *Do you believe your people would benefit as much?*

	% Plant I	% Plant II
Yes	26	11
No	74	89

Which part or parts of the rating procedure can be eliminated without losing anything? Check as MANY statements as apply.

% Plant I	% Plant II	
12	16	The job definitions
18	16	Writing the comments
4	5	Summarizing your opinion under strong and weak points
33	—*	Ranking on job performance
40	—*	Ranking on promotability
—*	26	The job performance rating
2	0	The interview
37	42	No part can be eliminated without losing something

* Not applicable at this plant

It is evident that the preliminaries to the interview are considered necessary and that the raters gained something from going through them. It is this gain that probably makes them more willing to tackle the interview with all its delicate problems in personal relationships.

The three percentages of any magnitude concern the final rating of job performance. In Plant I the ranking method proved to have many drawbacks. The writers feel that application of ranking procedures to merit rating will not prove satisfactory, especially when groups on the same job are small. Whether any evaluative scale should be used in a rating procedure that is designed to help the supervisor deal with his people is a moot point. Certainly it is the only point in the procedure that is questioned to any degree. Despite this doubt, it is considered valuable, as demonstrated in the next two tabulations.

Did the DESCRIPTION OF ALL-AROUND JOB PERFORMANCE add to or detract from the rating procedure? Check as MANY statements as apply.

% PLANT II*	
84	It helped in showing my people where they stood with me
11	It made it harder to talk to my people
11	It was especially discouraging to older workers who were rated only "satisfactory"
11	Because I had to show this to my people, I could not rate them down as far as I would have liked
37	Seeing where they stood on this scale served as an incentive for my people to work harder
47	It was easy to tell where a person stood on this scale
5	This part of the procedure caused a lot of unnecessary discussion
5	This part of the procedure served no useful purpose

* Question not applicable to Plant I, where a ranking procedure was tried.

Which procedure would you prefer for giving your over-all judgment on job performance?

% PLANT II*	
74	Checking the DESCRIPTION OF ALL-AROUND JOB PERFORMANCE just as you did this time
26	Making notes in Comment Section concerning transfer, termination, or promotion. Nothing would be written if none of these actions are considered necessary, desirable, or possible.

* Question not applicable to Plant I, where a ranking procedure was tried.

Again there is evidence that the raters wish to retain the evaluative scale of job performance, even though its worth is most questioned.

What did YOUR PEOPLE get from the new rating procedure? Check as MANY statements as apply.

% PLANT I	% PLANT II	
68	84	A better understanding of where they stand with me
53	79	More assurance that I am really trying to help each of them
49	53	More assurance the ratings are not a black list
84	89	A more definite idea of what they should do to improve
5	0	The rating procedure did no harm to my people but it did no good
4	0	The rating procedure made the relationship between me and my people worse

It would have been preferable to have obtained this information from those who were rated. Since this was not possible, the next best thing was to ask the raters what their workers got out of the procedure. As their opinions were based on the reactions of the employees in the post-rating interview and subsequently on the job, these opinions have a better foundation than is usually the case.

Clearly the raters believe their people are being affected in desirable ways by the program. In Plant I, 4 per cent said it worsened relations between them and their people, but it became quite apparent from the discussion that this was owing to poor handling of the interview—and this can be corrected by training. To find such a small percentage unable to handle the interview situation speaks well for the procedure itself as a preparation for the interview.

Do you believe that the new rating procedure is worth the time it takes?

% PLANT I	% PLANT II	
82	89	Yes
14	11	No
4	0	Omit

In view of the time this procedure takes and of the limited time raters have for this sort of thing, these results are considered a high endorsement of the program.

How often should we have merit ratings? Check ONE.

% PLANT I	% PLANT II	
0	0	Not at all
5	5	Once every 3 months
33	63	Once every 6 months
58	32	Once every year
4	0	Only at special times, such as when 30 days on a job, when looking for someone to promote, etc.

In a sense this is the "payoff" question, for here the rater could vote to abolish the procedure. Yet not a single rater in either factory voted "not at all." It is interesting to note and logical that the raters in Plant I, where most people have long service with the company, prefer to have ratings at less frequent intervals than do those in Plant II, where people are relatively new to their jobs. This implies that the raters believe new workers should be appraised frequently. As the worker gains experience and settles into his job, however, raters feel that merit ratings can be made less frequently.

WHO NEEDS TRAINING—AND WHY

By A. H. HOUSEKNECHT
Training Division
Esso Standard Oil Company

Haphazard guessing of training needs underlies the ineffectiveness of many training programs. An essential first step in launching any organized training program is to get a factual and statistical picture of training needs, and to analyze them in terms of the scope and type of training required.

DETERMINING "who" needs training is quite generally recognized as the first step in setting up any organized training activity. This step takes into consideration two important principles of training in an industrial or business organization:

1. That training should be geared to meet current and projected manpower needs. Too much training represents a waste, just as too little training represents a loss.
2. That training must be "tailored" to the individual, his requirements and his potential ability. Not all employees can be brought up to a common level of performance. Each possesses different aptitudes, interests and learning ability which govern his growth and development.

The primary reason for investing time and money in a training program is to bring about improvement in the performance of the workforce. It therefore follows that, in advance of setting up any program, a definite need for improvement should be identified and interpreted in terms of the nature of training required.

Training needs in a working organization often appear vague on the surface and difficult to identify. Perhaps this is because they vary so widely in different employees performing the same work and in the organizations engaged in similar operations. On the other hand, it is quite easy to recognize some problems or situations in which the lack of training is a contributing factor. This knowledge, however, does not give a sufficient lead for formulating a training program especially designed to overcome the problem or remedy the situation.

Any working organization in industry may, for the purposes of illustration, be regarded as a machine—an automobile engine, for instance. The satisfactory operation of an automobile engine depends upon the satisfactory operation of

many component parts. Any single one of these essential parts which fails to function as intended seriously affects the efficiency of the whole car, or even stops it entirely. A cracked spark plug, a valve that sticks, water in the gasoline, faulty ignition, or a leaky carburetor, each may cause an otherwise good automobile to operate in a most unsatisfactory manner. To bring about improvement in operation, it is obviously necessary to repair the part that is not performing properly. In doing this, a competent mechanic first analyzes the difficulty and then proceeds to correct it by using the right tools, methods, and repair equipment. If poor performance is caused by a broken or frayed wire, the trouble will not be corrected by cleaning the spark plugs.

This same reasoning applies in determining training needs and in setting up the proper type, amount and method of training to satisfy them. Only after specific training needs are known, can effective and economical training be organized.

Contrary to this practice, training programs are sometimes introduced into organizations on the basis that they were successful in another organization, and without any attempt to identify training needs necessary for the formulation of suitable objectives. For all practical purposes, such "shot-gun" courses may be of good influence generally, but they are of little or no direct effect in overcoming needs peculiar to a particular workforce.

BASIC CONCEPTS IN DETERMINING TRAINING NEEDS

In adopting a systematic approach for determining training needs, certain basic concepts should be recognized:

1. Training needs make themselves manifest in the problems of management. Not all management problems, however, have improper employee performance as a contributing factor. An insufficient number of tank cars might present a management problem, but in no way could this be construed as an indication of training need. Spotting those management problems which do have implications of training needs and isolating the part susceptible to a training approach is the first step in determining training needs.
2. In order for training to be most effective as a management tool, it must be designed and thoroughly organized as an integral part of management operations. Training cannot be considered as something scheduled for slack periods or left to the whims of employees; nor is it something that can be thrown together overnight to overcome a training need that has been accumulating or evident for years. It must have both immediate and long-range objectives predicated on a factual analysis of present and projected training needs. Then, and only then, will training contribute most effectively as a function of management.
3. The foreman or supervisor is the key man in any plan for determining training needs. Day after day he is conscious of production demands. He observes his workers and appraises their attitudes, performance, and output on their present assignments, as well as their qualifications for upgrading. He is continuously weighing the qualities of each worker against the demands of production, and is aware of any gap between what he expects and the actual performance. Although he is currently doing this in an informal manner, he does not have any system for defining these training needs in such terms as will aid him in keeping abreast of his training requirements. His training is, by and large, a matter of overcoming training needs as they arise. Nevertheless, he possesses the facts which are necessary for determining training needs and, with a little help, he can systematically identify

present and projected needs far enough ahead to plan and establish necessary training.

4. Training is the company's business. No longer can industry and business proceed on the premise that it is entirely up to each employee to qualify himself for advancement. Such an assumption would base on the erratic foundation of individual initiative the vital function of providing qualified men to fill vacancies.

If these fundamental concepts are recognized, then a system for determining training needs will contribute measurably to the successful operation of all phases of production, and will permit action on many management problems before they arise.

A FOUR-STEP APPROACH

Determining training needs is an evaluation process—a weighing of the performance of the workforce or of an employee against recognized work requirements. The difference between what is expected or desired and present performance represents training needs. Any plan or method for determining training needs is founded on this simple principle.

Regardless of whether the training involves mechanics, operators, technical personnel, office employees, or supervisors, this principle applies. In each case it is necessary to measure the employee's performance against his job requirements. Consequently, a definition of training needs becomes useful only when reduced to the needs of individual employees or groups of employees having common needs.

The process of determining training needs comprises four successive steps:

1. Spot the operating or management problems where training may be required.
2. Analyze each problem to determine what part may be solved by training.
3. Trace training need to groups of employees.
4. Determine individual training needs.

SPOT THE TRAINING PROBLEM

In spotting the operating or management problems where training may be required, it is necessary to recognize symptoms of training needs. Some management problems present obvious training needs, whereas in others the need is hidden and sometimes mistaken for other causes. Training is obviously indicated, for example, in situations involving the following:

New or transferred employees
Expanded operations
Conversion of equipment
New operations or procedures
High accident rate
Excessive re-work
Anticipated loss of personnel
Difficulty in finding qualified replacements

On the other hand, here are some examples of conditions in which the training needs indicated are hidden or obscure:

Production "bottlenecks"
Excessive overtime
High unit cost of production
High maintenance costs
General lowering of performance standards
Limited experience of some employees
Specialized "know-how" possessed by few employees
Numerous grievances and complaints

These are all management problems which may be solved in whole or in part by the right kind of training. Training must not be considered a "cure-all" for every problem involving employees. In some cases the problem may result from conditions over which the employees have no control whatsoever.

Thus if one or more of these indicators should be present, it is necessary to analyze and study the problem to get a complete picture of all contributing factors.

ANALYZE THE PROBLEM

Analysis of the problem should be made with a great deal of care so as not to miss important facts that may have bearing on the causes or methods for solving the problem. This analysis will require a discussion of the problem with field supervisors, department heads, key employees, and others having any knowledge of contributing factors to the problem. Records and reports should be examined to get comparative data; inspections made of operations, supervision, and performance routine to check for gaps between recognized standards of operation and performance and existing conditions. Through this process enough factual data will be gathered to determine the portion of the problem which has training implications, and to locate the trades, units, or operating areas where the training need appears to exist.

Some time ago the Esso refineries considered the establishment of an over-all manufacturing training program to satisfy present and projected training needs. This action was prompted by the evidence of some obvious indicators of training needs throughout the company, such as: high average age of workers; anticipated loss through retirement; accelerated promotions during the war; scheduled expansion and conversion of refinery processes and mechanical equipment; few projected training programs in recent years.

Based on these indicators, a thorough study was made of these problems in each refinery to determine the scope of the training need and to locate those areas where the need appeared most acute.

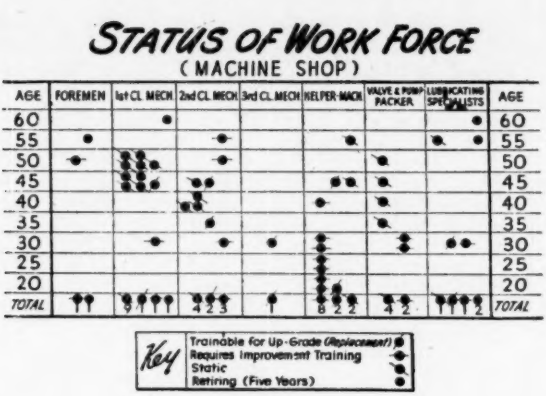
It was found that a recognized training need, both present and projected, existed in many areas of operation, and that the greatest need for immediate attention was in the mechanical trades. Incidentally, the supervisors and foremen

PERSONAL DATA *for*
Personnel Status Survey

MACHINISTS – 1st CLASS

EMPLOYEES	AGE	CO. SERVICE	JOB SERVICE
1. E.T. Black	47	24 yrs. 3 Mos.	12
2. H.K. Horvey	38	15 yrs. 5 Mos.	8
3. T.E. Garrison	48	26 yrs. 1 Mos.	15
4. R.O. Bayne	36	19 yrs. 3 Mos.	5

FIG. 1



Personnel Status Survey.

FIG. 2

of the various process units and trades made most worthwhile contributions in analyzing these problems. Not only were they aware of the need, in most cases, but they also identified certain factors contributing to the need, and presented some ideas for overcoming it. This study, however, did not reveal the magnitude of the need within the various trades nor the type of training required.

TRACE TRAINING NEEDS TO GROUPS OF EMPLOYEES

At this point a new technique was designed in the form of a Personnel Status Survey. This form presented a systematic approach for informally analyzing the performance and potential of each employee, and for charting his probable status and development during the ensuing five years. From this survey, it was possible to determine: (1) the number of employees in each classification to be retired in the next five years; (2) the number of fully qualified employees in each job classification who were trainable for higher levels of skill or promotion; (3) the number who were deficient in some respect and required improvement training to attain desired work standards; and (4) the number who possessed limited potential for the improvement of this skill and performance.

Here's how the Personnel Status Survey is prepared:

1. A list is prepared of the employees in each job classification within the trade or unit, along with their ages, job service, and company service (see Figure 1, "Personal Data for Personnel Status Survey"). This information may be secured from the Personnel Department, and should be arranged in the order indicated.

2. Next insert the correct identification for each position across the top of the Personnel Status Survey form (See Figure 2, "Personnel Status Survey"). In units or shops having a job progression system, such as helpers to third-class mechanic, to second-class mechanic, etc., start with the highest job classification in the first column, and list positions in descending order of promotion. When no job progression system exists, positions are listed at random without any particular sequence.

3. Using the numbers preceding the employees' names, plot each employee on the chart in accordance with his position and age.

4. Evaluate each employee in consultation with other supervisors who have an intimate knowledge of the employee's performance and potential ability. This evaluation should be carefully made by weighing the employee's performance

against his job requirements, and not against the performance of other employees. When all supervisors reach a uniform agreement on the performance status and potential ability of each employee, the employees' code numbers are identified in this manner:

(1) Black-circle the numbers representing those employees to be retired within five years and who will probably not be promoted within that time. Both age and company service are considered in identifying these employees.

(2) Blue-circle the numbers representing those employees in each position who are fully qualified in their present position and are trainable for promotion or to a higher level of skill. If no established performance standards have been defined for the different positions, it is desirable to identify them in general terms before performing this step. Otherwise, each supervisor will have a different set of standards which he applies in evaluating each employee.

(3) Red-circle the numbers of those employees in each position who possess limited potential for improvement of their present performance and skill—those employees for whom training would not materially improve their working status or general welfare.

Employees in this group are characteristically those who are physically handicapped, which restricts the type and amount of work they can perform; those whose age limits their ability to learn and perform more complex job skills; and those who are rendering satisfactory performance in their present job classification, but who do not possess the desire or potential for other types of work, and those who do not possess the aptitude or ability to gain greater proficiency in their present and/or different job assignments.

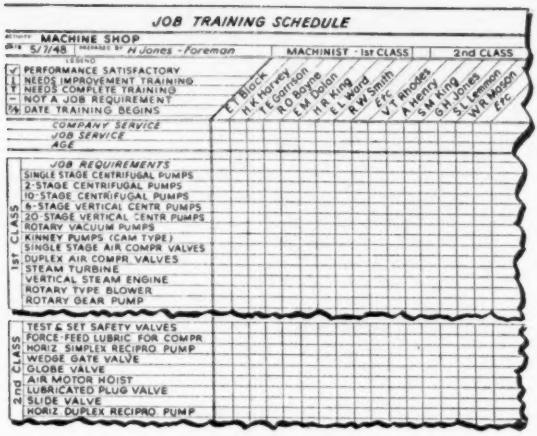
(4) Green-circle the numbers representing employees in each position who are deficient in some respect in their present assignment and who, through improvement training, can attain desired work standards. A number of employees in this group will fully qualify in their present assignment with limited training, and can be "earmarked" at this time as trainable for promotion after improvement training.

ANALYSIS OF TRAINING PROBLEM

(MACHINE SHOP)

ANALYSIS	Foremen	1st Cl Mech	2nd Cl Mech	3rd Cl Mech	Helper-Mech	Valve & Pump Packers	Lubricating Specialists	TOTAL
Total Assigned	2	12	9	1	12	6	5	47
Number Requiring Job Training for Improvement	1	1	3	0	9	2	1	17
NEEDS - NEXT FIVE YEARS								
Planned Additions	1	5	0	0	5	1	1	13
Retiring (5 yrs.)	1	1	1	0	0	0	2	5
Expected Loss - Others	0	4	2	0	2	0	0	8
Supplied to Higher Classifications	0	2	2	1	8	0	1	14
Total Needs	2	12	5	1	15	1	4	40
PLANS - FOR MEETING NEEDS								
Supplied from Lower Classifications	2	4	2	1	0	1	4	14
Hiring Qualified Men	0	5	0	0	0	0	0	5
Transfer or Hiring & Qualifying through Job Training	0	0	0	0	15	0	0	15
Developed through Apprentice Program	0	3	3	0	0	0	0	6
Total Needs Met By Plans	2	12	5	1	15	1	4	40

FIG. 3



Job-Training Schedule.

FIG. 4

Employees in this group are characteristically those with limited job service or those whose experience has been restricted to specialized assignments within their classification. There may be other reasons for below-standard performance, however, such as limited technical knowledge, premature promotions during war years, slow hazardous worker, etc.

The Personnel Status Survey presents a picture of the workforce which may reveal a number of management problems in their initial stages. It will show at a glance an unbalanced workforce, high average age of all employees, lack of potential in lower classifications, anticipated vacancies for which there are no qualified replacements, and an excess of limited personnel.

Right now Esso has a fairly good picture of the status and potential of the workforce. This information will have no value, however, unless it is interpreted in terms of training needs in each position. Only as this information gives more specific leads for planning training does it become important.

STUDY EACH POSITION

The next step is an analysis of training needs by positions. It also establishes a plan for "feeding" personnel into each position for the purpose of satisfying the need for replacements of additions to the workforce during the next five years.

This analysis is most systematic and thorough if the information gained through the Personnel Status Survey and other research is brought together in chart form so that all statistics can be compiled, studied, and evaluated. Figure 3 ("Analysis of Training Problem") shows a chart designed effectively to portray personnel requirements and to analyze complete training needs by classifications.

This analysis is prepared by compiling the training needs identified on the Personnel Status Survey along with needs which will arise from other conditions.

In preparing Figure 3, proper identifications of positions are inserted across

the top of the form to agree with those on the Personnel Status Survey, and the form is completed as follows:

Line 1—Insert totals of present personnel covered in survey.

Line 2—List number of employees given green circle in survey.

Line 3—Include numbers needed to bring up to strength and additions estimated for anticipated expansion.

Line 4—List those given black circle on survey form.

Line 5—Make estimate based on plant experience covering losses due to termination, transfer, death, and other causes. This may be determined by taking an average of two or three normal five-year periods in this trade or unit.

Line 6—Determine number of employees who can qualify for promotion to fill requirements within time needed (those given blue circle in one or two subordinate classifications, and perhaps a few with green circle who may soon qualify).

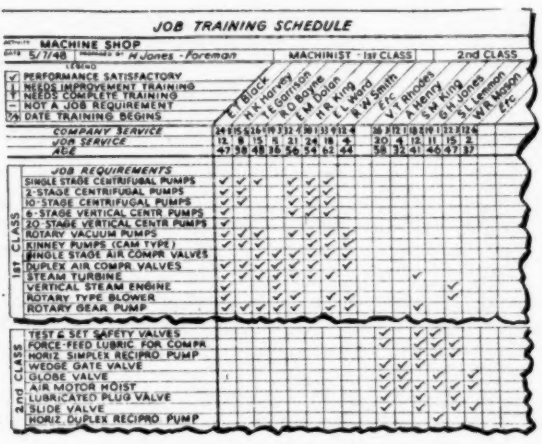
Line 8—Number secured by promotion (Line 6) but listed here under the new position for which they will be trained.

Lines 9, 10, 11, 12—Estimates here of the number of replacements that can be secured through these various methods in order to meet the total needs indicated in Line 7.

This analysis represents a true picture of the training needs in each position insofar as the performance and potential of employees have been correctly evaluated and the need for additional personnel has been correctly estimated. It should not, therefore, be considered final. Instead, there should be another survey and analysis prepared at least once each year, which takes into consideration current production needs and the demonstrated improvement of the workforce. In this way it will be possible to keep the training program geared to meet the changing needs of each shop or unit.

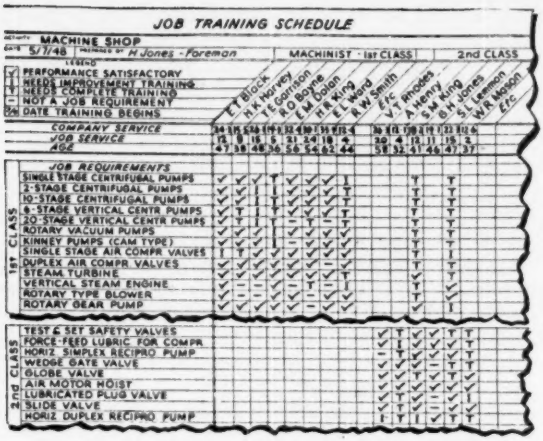
DETERMINE INDIVIDUAL TRAINING NEEDS

Having determined the training needs by groups or positions, it is now possible to establish the necessary training programs. Before employees can be enrolled in the program, however, it is necessary to determine the job requirements on which



Evaluate the Employee's Performance.

FIG. 5



Identify Training Needs.
FIG. 6

they are deficient and on which they need training. This can be done concurrently with the development of the training program.

This final operation of determining individual training needs can be accomplished in a series of four successive steps, as follows:

1. Identify the jobs or work processes in the shop, unit or position that must be performed by individual workers. This should include jobs anticipated in expansion, reorganization, or conversion as far as possible in order to have personnel ready when needed.
2. Establish standards of performance for the various jobs or work processes.
3. Evaluate the individual worker's ability to perform the jobs or work processes as required.
4. Record those jobs or work processes in which the individual needs training to perform at desired standards.

In completing this analysis of individual training needs, the foreman or supervisor must again be recognized as the most reliable and direct medium for identifying the training needs of each employee. He is the only one who has been in a position to weigh the performance of each employee against the requirements of the job. Usually this process has been going on continuously in an informal manner and, by adopting a planned approach, the supervisor will be able to interpret his observations in terms of definite training needs of each employee.

As a basis for setting up a simple plan for determining and scheduling specific training needs, a form known as a "Job Training Schedule" proves very effective (see Figure 4).

In preparing the Job Training Schedule, list the job requirements in the left-hand column for each classification, starting with the highest. These requirements will be identified in accordance with the nature of the jobs to be performed. They may be specified as skills, machines operated, work assignments, tasks, or operations. Only the supervisor can define the job requirements which are of the most importance for his daily job of managing his shop or unit. The procedure, however, is

applicable in any case. In the case of the machinist trade on this chart, the job requirements are identified in terms of the different pieces of equipment to be maintained.

List across the top of the form the names of employees by classifications. This should eventually include all employees in the unit, but initially may be confined to those spotted on the Personnel Status Survey as requiring improvement or upgrade training. Such personal data about each employee as may be helpful to the supervisor in preparing and using the Job Training Schedule may be listed under each employee's name.

Establish standards of performance for each job requirement. In the absence of such standards for each job requirement to be used as a "measuring stick," it is possible to identify an employee whose performance on a certain job requirement meets the recognized standards of performance and to measure all other workers against his performance. It must be recognized, however, that this is an expediency, and that tangible standards of performance for each job requirement, defined in writing, are the only reliable "measuring sticks" against which an employee's performance can be most correctly judged.

Evaluate the performance of each employee against the standards for each job requirement, and check those on which his performance is satisfactory (see Figure 5, "Evaluate the Employee's Performance").

This check of the job requirements which each worker can perform satisfactorily represents an inventory of all available skill in the workforce. At this point it is possible to review the form horizontally for the purpose of detecting those job requirements which are undermanned. By reviewing the form vertically, it is possible to spot those employees who may have many job deficiencies, and who need extensive training.

The next step is to identify the job requirements on which each employee requires training, distinguishing between those requiring complete training (T), and those requiring improvement training (I) (see Figure 6, "Identify Training Needs"). In some cases, the supervisor may omit certain job requirements because of physical defects of the employee or because he proposes to use him in a specialized capacity. Such omissions are indicated by a dash (—).

Schedule of Job Training.

FIG. 7

Having determined each employee's training needs, the supervisor is now ready to establish priorities for training and to set starting dates for the first employees to be enrolled (see Figure 7, "Schedule of Job Training"). He prepares his schedule of training by replacing the (I) or the (T) below the employee's name, and opposite the job requirement, with the date designated employees will begin their training.

The Job Training Schedule is the supervisor's blueprint for building and developing his workforce. Its main purpose is for scheduling and recording the training of his subordinates, but it is also effective in many other functions involving his subordinates.

This pattern for determining training needs recognizes the line supervisor as the person responsible for the training of his workforce (see the four-point program for determining training needs, p. 285). It presents a systematic approach which the supervisor may use in evaluating the performance of his employees, and in converting his findings into training needs which may be overcome, one by one.

CONCLUSION

The study of training needs in a business organization never ceases. It goes on before, during, and after the establishment of a training program in order to keep pace with changing situations. This study should be systematic and at the same time informal and continuous, rather than formal and periodic. In this way training can be currently geared to the needs of the workforce and can produce the fullest benefit to the employees and to the business.

REPORTING PERSONNEL STATISTICS

By RICHARD W. STITT
Industrial Relations Department
The Philadelphia Transportation Company

SEVERAL years ago we began to realize that a large number and variety of reports containing a diversity of personnel statistics were crossing the desks of our executives at the Philadelphia Transportation Company. Each month they would receive a report on labor turnover, on the suggestion system, on grievances, on the cost of living, and on numerous other subjects of a personnel nature. Many of these reports contained more detail than the average busy executive either wanted or needed to analyze.

We then asked ourselves "Why can't we collect all important figures having a bearing on personnel matters on one piece of paper, so our executives can tell at a glance what's going on?" This "Personnel Statistics" monthly report was the answer we came up with.

AN OMNIBUS FORM

Thirty-five items of information are contained in this report, grouped within 10 major classifications. Very little detail is included, but the people to whom the report is sent can quickly determine what trends should command their more careful attention.

"Personnel Statistics" gives them, quickly and easily, the current status of labor turnover, the extent of participation in the benefit programs and the suggestion system, pertinent figures on safety and health factors, a summary of passenger complaints and commendations, the current wage level of our hourly employees as

PHILADELPHIA TRANSPORTATION COMPANY

PERSONNEL STATISTICS

NOVEMBER 1949

		THIS MONTH	LAST MONTH	% FROM LAST MONTH	*LATEST INDEX	1948 MONTHLY AVERAGE INDEX
	Applicants	1,388	1,570	- 11.59%	11.55	11.90
	Hires	24	43	- 44.19	0.20	0.55
	Reinstatements	7	7	No change	0.06	0.02
	Transfers	7	10	- 30.00	0.06	0.16
	Total Separations	86	160	- 46.25	0.72(1)	0.92(1)
LABOR TURNOVER	Resigned	10	16	- 37.50	0.08	0.24
	Dropped	9	5	+ 80.00	0.07	0.07
	Discharged	15	17	- 11.76	0.12	0.14
	Laid Off	26	99	- 73.74	0.22	0.26
	Died	10	11	- 9.09	0.08	0.07
	Pensioned	16	12	+ 33.33	0.13	0.12
	Miscellaneous	-	-	-	-	0.04
GRIEVANCES	Number at 2nd Level	21	24	- 12.50%	0.17	-
	Number at 3rd Level	10	10	No change	0.08	0.12
	Total on Pension (as of 12-1-49)	1,172	1,175	- 0.26%	9.75	8.46
EMPLOYE BENEFITS	Blue Cross Enrollment	7,878	7,920	- 9.53	65.55	58.73
	Co-Op. Assoc. Members (Active Employe Members only)	10,243	10,265	- 0.21	85.22	85.12
	Helping Hand Advances	26	22	+ 18.18	0.22	0.23
	Industrial Accidents	248	179	+ 38.55%	2.06	1.74
SAFETY	New Injury Cases	145	160	- 9.38	1.21	1.27
	New Compensation Cases	15	12	+ 25.00	0.12	0.12
	Sick Benefit Cases	173	180	- 3.89%	1.44	1.43
HEALTH	New Medical Cases	220	207	+ 6.28	1.83	1.52
	Medical Treatments	2,058	2,375	- 13.35	17.12	17.20
SUGGESTIONS	Suggestions Submitted	85	69	+ 23.19%	0.71	0.51
	Suggestions Adopted	12	-	+ -	0.10	0.06
PUBLIC OPIN OF EMPLOYES	Commendations	43	59	- 27.12%	0.36	0.35
	Complaints	901	860	+ 4.77	7.50	7.04

		THIS MONTH	LAST MONTH	% FROM LAST MONTH	% FROM FEBRUARY 1949
AVERAGE WEEKLY WAGES(3)	Trainmen & Busmen	$67.92	$67.35	+ 0.85%	- 1.79%
	Maintenance Employes	56.70	56.46	+ 0.43	- 2.79
	All Hourly Workers	62.79	62.42	+ 0.59	- 1.97
	Phila. Factory Workers	56.38(2)	57.56	- 2.05	- 0.90
COST OF LIVING	BLS Index for Phila. (As of November 15, 1949)	168.6	168.9	- 0.18%	+ 0.06%
SIZE OF WORKFORCE	Total Employees	12,019(4)	12,074	- 0.46%	- 3.30%
	Under Union Agreements	10,972	11,020	- 0.44	- 3.65

(*) Index Number represents number of cases per hundred employes.
(1) Company's rate of turnover.
(2) Tentative only. Final figure will probably differ slightly.
(3) Includes employes working any part of week.
(4) Includes 62 employes in military service.

INDUSTRIAL RELATIONS DEPARTMENT
DECEMBER 27, 1949

compared with the average wages of Philadelphia factory workers, the latest cost of living index, etc.

In addition to the current figures on the report, yardsticks are provided to give some indication of trends. The *first column* of the report shows the actual number of cases for each item during the month, while the *second column* shows the figures for the preceding month. The *third column* indicates the percentage change from the preceding month to the current month. The *fourth column* converts the number of cases into an index figure, and is obtained by dividing the number of cases by the total number of employees. It thus represents the number of cases as a percentage of the total employees. The *last column* gives the monthly average index for the preceding year, for comparison purposes.

In the case of wages, cost of living, and size of workforce, percentage changes from the previous February are shown, since the labor contract with the union runs from February to February and changes during the contract year are significant.

A VALUABLE MANAGEMENT TOOL

We find it very easy to prepare this report. A system has been set up wherein all the figures funnel in from the various people concerned with each activity to the one person who compiles the report.

Copies are sent to department heads, major executives, and certain directors of the company. Many of them have come to regard it as one of their more helpful management tools.

•

Cost of Creating a Job

EVERY job in industry today is backed by all these factors—ideas, initiative, savings, research, responsibility. To operate a company and provide employment, each employee must be "outfitted" with his own special tools . . . ranging from pencils and desks to locomotives and 20-ton cranes. The total investment of a company in plant, materials, and equipment, divided by the number of employees, gives us the number of dollars invested per employee on the payroll.

Considerable variation exists among industries in the amount of capital invested in equipment used by the worker in the process of production. A recent survey shows that companies making chemicals and chemical products invest $24,500 per production worker. This is eight-and-a-half times as much as the capital of the lowest-ranking industry in the survey—leather and leather products, with $2,900.

It takes $22,000 to keep a man working on the railroad. A metalworking establishment estimates that $4,300 of savings are necessary to buy the machines and supplies and building space for each job.

The petroleum industry averages an investment of $17,400 per employee. A paint and glass manufacturing company gives the cost of creating a job as $9,088. A large rolling mill finds that jobs mean an investment of $10,000 per worker. In fact, from $8,000 to $10,000 is approximately the average investment needed to provide jobs, taking all manufacturing industries together.

Investment in equipment per operating employee in electric utilities is more than $65,000 per person. A gas company figures it takes $33,636 for each job. Utilities often require ten times as much equipment per employees as manufacturing industries.

The initial cost of providing jobs has gone up. Right now, a job in the cotton textile industry requires a capital investment of $16,500. In 1936, the same job needed an investment of only $4,402.

In addition to the initial cost of providing a job, industry must spend a certain amount each year for new plants and equipment for workers, to keep their jobs up-to-date and to stay in business. Again, the chemical industry leads, with 20 times as much annual investment per worker as the leather industry. Paper, pulp and paper products come second, with an annual investment of $1,046 of new equipment per worker.

Industries are investing anywhere from four cents to 68 cents for each wage dollar in new equipment.

—*Management Information* (Elliott Service Company, Inc.)

SCIENTIFIC SELECTION OF ENGINEERS

By MILTON M. MANDELL
Chief, Administrative and Management Testing
United States Civil Service Commission
Washington, D. C.

Turnover among the thousands of engineering graduates that industry recruits each year could be reduced substantially if prevalent hit-or-miss selection methods were discarded for a more scientific approach. Here is a description of a group of tests that promises to differentiate superior from inferior engineers.

THE manner in which engineers are selected for employment by American industry at the present time is rather well summarized in an interview with a college senior which was reported in *Life* magazine recently. "We're shooting to be tagged by G.E. or G.M. or some outfit like that before we graduate," said the senior, "that's why you've got to figure all your plays from the time you're a sophomore—the right courses with grades that are good but not too good (lower part of the top third is about best), plenty of campus activities to show leadership and ability to get along with people, and some athletics so that the personnel jokers from the big companies who look over the records will know that you're no swish. You've got to be well-balanced and well-rounded—that's how you get the letter on the high-grade bond paper which says, 'Report to the executive offices on the first of September, 1949.' That's what almost all of us are after."

Specialists in selection methods have studied clerical, trade, and sales jobs in order to determine which methods would be most effective. Similar studies are needed in the various professions. The accounting profession has taken the leadership in officially sponsoring extensive studies of the best methods for hiring accountants. Following is a brief report on a similar study of the engineering profession. It is based on studies which included about 400 engineers employed by the Federal Government in the fields of civil, mechanical, aeronautical, electrical, electronic, and radio engineering. About half the group were engaged in engineering activities associated with research work, while the remainder were employed in the production field, or in design work.[1]

The salaries of the engineers participating in the study ranged between $3,000 and $6,000 a year. The primary method used for determining which selection methods were best was to correlate the scores on the various tests that were tried out with the actual job performance of these engineers as judged by their colleagues and their supervisors.

THE TEST BATTERY

The tests that produced the best results for engineers were an achievement test in the field of physics, a mathematical formulation test, an evaluation of hypotheses test, a spatial visualization test, and a table reading test.[2]

[1] The study was carried on by the Civil Service Commission as part of its regular program for the improvement of selection methods. Part of the work that was done on this project was performed by persons employed by the American Council on Education in its contract with the Scientific Personnel Division of the Office of Naval Research. Neither organization assumes any responsibility for the contents of this report.

[2] The table reading test referred to in this article can be found in a volume on classification tests edited by J. P. Guilford and published by the Government Printing Office for the Department of the Air Force; the formulation test is included in the Penn State physical science and engineering aptitude test. The subject matter test in physics was specially prepared for the purpose of this study.

The physics test is a factual test of knowledge in the broad field of classical and modern physics.

The formulation test is similar to a test used by a number of universities for the selection of candidates for engineering school. It involves mainly knowledge of algebra and trigonometry and some knowledge of calculus. The test requires the applicant to formulate the equation which is the equivalent of a set of data which are presented.

The evaluation of hypotheses test attempts to measure the reasoning ability of the candidate by requiring him to evaluate the soundness of various hypotheses which are offered as explanation for scientific findings.

The spatial visualization test involves the ability to perceive in three dimensions material which is presented in two dimensions.

The table reading test is a simple test and is similar to the task of finding numbers in a table of data. It seems to measure carefulness, attention to detail, and perceptual ability.

DETAILED RESULTS OF STUDY

The administration of these tests takes approximately four hours. Following are some indications of the effectiveness of these tests in distinguishing between those who perform better work as engineers and those whose job performance is inferior.

On the subject matter test in the field of physics, more than 50 per cent of those rated high on job performance received high scores on the test, while none of those rated low on job performance received high scores. The total group consisted of 31 radio engineers. For a group of 100 engineers in the aeronautical and mechanical field, 34 per cent of those rated high on job performance received high test scores, while only 8 per cent of those rated low in job performance received high scores. This difference is highly significant in statistical terms.

On the formulation test, of one group of 35 electrical engineers, about 75 per cent of those rated high in job performance received high test scores, while none of those who were rated lowest in job performance received high scores. On the same test, for a group of 38 mechanical engineers, about 75 per cent of those rated high in job performance received high test scores while none of those rated low on job performance received high scores. For one group of 87 electronics engineers, the average score of those engaged in research work was significantly higher than those not engaged in research work. The average score on this test of 25 items in the field of formulation for those engaged in research work was 5 points higher than for those not engaged in research work.

For a group of 32 radio engineers, about 40 per cent of those rated high in job performance received high scores on the spatial visualization test, while none of those rated low received high test scores. For a group of 114 aeronautical and mechanical engineers, correlation with job performance was +.32. While this correlation is relatively low, it is significant when based upon this number of cases and significant also because this spatial visualization test has relatively low correlation with the other tests in this battery.

Consistent results in favor of superior engineers were obtained with the table reading test. Engineers who made more than three errors on this test were consistently those who were rated inferior on job performance. Significant differences were obtained on the scores on this test between research and non-research engineers in favor of the research engineers.

For a group of 26 electrical engineers, about 65 per cent of those rated high in job performance received high grades on the hypothesis test, while fewer than 20 per cent of those rated low in job performance received high test scores. For a

group of 38 radio engineers, the correlation between salary level and test scores was +.32.

OTHER SIGNIFICANT FINDINGS

Some of the tests described above also gave promising results with two groups of civil engineers. The formulation test was highly significant in differentiating between design and field engineers. The table reading test also gave significant results. Using job performance as the criterion, these two tests also furnished favorable results and the hypothesis test was promising. For example, for one group of 23 engineers engaged in soil mechanics work, the correlation of the formulation test with job performance was +.59, while for the same group, for the hypothesis test, the correlation was +.54. On the table reading test, of the 29 engineers who were rated highest on job performance, 19 received high test scores while only six of the 19 who were rated lowest on job performance received high test scores.

As part of this study, data were obtained on the personal characteristics which distinguish superior from inferior engineers, using job performance as the basis for differentiation. Differences which were statistically significant were obtained on such questions as age at graduation from high school, standing in college graduating class, membership in academic fraternities, graduate work done, and participation in athletics. Surprising as it may seem, more of the engineers who were rated low in job performance graduated from high school at the age of 16 than those rated high in job performance, more of whom were older at graduation. On the other hand, those who had been in the lower half of their college graduating class tended to be inferior in job performance. Significantly higher percentages of those who were rated high in job performance were members of honorary academic societies and fraternities than those rated low in job performance. Those who had done one year of graduate work tended to be rated high in job performance. Of the 22 engineers in the sample that was studied who were captains and managers of varsity athletic teams, almost 75 per cent were rated low in job performance.

CONCLUSION

These data indicate that superior engineers can be differentiated from the inferior engineers by a number of written tests and by various biographical information items. It is obvious that a number of characteristics which are not measured by these methods are also important. Yet a study of 86 civil engineers in the lower professional grades indicates that somewhat more than 55 per cent of the characteristics sought by their superiors are included within the realm of the technical knowledge of the employees, while about 24 per cent of the characteristics sought are in the realm of personal characteristics. This statement is not based on the usual method for obtaining such information, that of soliciting opinions; the statement is based on a statistical analysis of job performance ratings. It would therefore seem, as the data indicate, that these selection measures can produce valid results. It is obvious that the early stage of experimentation in the field of scientific selection of engineers justifies continued and extensive experimentation in order to determine which methods would best supplement the methods derived from this study. These data are offered as a help in the experimentation.

STEWART-WARNER TELLS WORKERS THE STORY . . .

By J. R. CLARKE
Director of Employee Relations
South Wind Division
Stewart-Warner Corporation

At the South Wind Division of Stewart-Warner Corporation, the story of the business is the business of every man and woman employed at the heating manufacturing plant—and they get the story straight from the source! Here is a thoroughgoing two-way communication program that has paid off in a contented workforce.

TOO often, companies print glowing editorials in publications and bulletins telling their employees they are important members of the industrial team, but fail to keep them informed of plans or changes made by management. The effect of such management statements is slight and generally transitory.

Stewart-Warner Corporation's South Wind Division in Indianapolis recognizes that the men and women who perform the work are the ones who help shape the company's destiny, and thus it uses various and continuing methods for convincing them that they are "business partners" in the business of manufacturing heating equipment.

MANAGEMENT MEETINGS

Top Management. Twice a year, top management holds a special meeting to review the over-all question of morale and employee relations. Oddly enough, the conclusion has been that management—top management—needs training on these subjects, and it takes steps to get it.

Supervisory Management. Twice a year, each member of supervisory management attends a general conference and dinner meeting, as a guest of the company, to discuss information concerning the anticipated production schedules and the sales outlook for the future. Brief, pertinent reports on corporation organization, engineering research and development progress, sales forecasts, future plans on methods and new equipment, budgets, costs, and future outlook for the heating manufacturers are presented by company officials.

Rumors, present so often in the minds of workers who know nothing about their company's plans, are defeated when the supervisors discuss the information gained from such meetings with the people under their supervision.

South Wind believes that word of mouth is still the most powerful and convincing means of communication. If the foreman or "boss" has confidence in the future of the company, and knows what is going on, the people under his supervision will learn of it and come to believe in the importance of their work, the company's objectives, and the supervisor himself.

Line Management. Bi-monthly management conferences or foremen's meetings are arranged by the Training Director throughout the year to give each supervisor a clearly defined picture of the part his work and his department plays in the production scheme.

These conferences are open seminars and discussion groups, conducted gen-

erally by the supervisors themselves, on topics ranging from efficiency, productivity, operation layout, functions of various departments, union-company negotiations, grievance procedures, quality improvement, scrap losses, economical materials handling, production planning, purchasing, methods, and morale to improvement in supervisory relationships.

Questionnaires are used to determine what the supervisor wants to know.

DEPARTMENT MEETINGS

A series of meetings with the men and women in each department are held monthly to acquaint them with company history, company products, functions of various departments and plans for the future. These meetings are "Progress Reports" to the workers on past sales, proposed production, progress of engineering, design, research and development, anticipated schedules, budgets, costs, labor relations, sales prospects, expansions or curtailments.

If new products are being developed, production increased or curtailed on certain items, labor costs for preceding months shown to be abnormally high, efficiency raised or lowered, scrap losses increased or reduced, company officials so inform the employees at these meetings. Thus the personnel of South Wind receive their knowledge of company operations from the source, not from misinformed friends, acquaintances, or business associates.

UNION-COMPANY COOPERATION HELPS TOO

The United Steelworkers of America, Local 2937, CIO represents hourly-rated production and maintenance workers in the bargaining unit at South Wind. The people do not have to join or pay dues to the union to work at South Wind, but any hourly-rated person is free to join if he wishes, and everyone in the plant and offices is informed on union-company negotiations.

Condensed minutes of the union-company negotiations are published in the plant newspaper. The union has a regular column in the plant paper. Supervisors are informed on changes in the contract in the foremen's conferences.

The three-year history of union-company relations has not been marred by strikes or shutdowns, and the company's management attributes this to mutual cooperation between union and company officials.

There are no "top secret" negotiations in South Wind's labor relations. There is no "hush hush" concerning grievances.

DIRECT COMMUNICATIONS

The *South Wind Reporter,* official bi-monthly newspaper by and for the employees of South Wind, keeps every member of the organization informed on promotions, transfers within the company, new suggestions and methods in effect, service awards, employees' personal histories, departmental operations, new products manufactured by other divisions of the company, social and recreational activities planned for the workers, vacation schedules, good housekeeping and safety reports, organization plans or changes, and news of employees.

All line foremen alternate in attending *suggestion system meetings* to hear suggestions and proposals for changes in processing, manufacturing, methods or improvements, submitted through the channels of the suggestion system. In this manner, every member of supervision keeps abreast of the ideas submitted for improvement of machines, tools, work methods, services, products or working conditions.

Semi-annual reports are sent to each department manager, listing the workers under his supervision who have made acceptable suggestions during the preceding six months.

Manuals, listing standard accepted corporation policies and procedures are the property of every department manager. If an employee under his supervision has a question regarding procedures, outside the supervisor's realm of responsibility, the department manager is in a position to give the person a correct answer.

New workers receive copies of the *Union-Company Agreement, South Wind Handbook, Insurance Benefit booklet* and various other company information, following a *one-hour induction training class* on company products and procedures.

Displays of every product manufactured by the South Wind Division are exhibited in the company lobby and cafeteria. A *spot news board* for plantwide "on the spot" news photographs is located in the plant cafeteria. Photographs are changed twice weekly.

Official bulletin boards, departmental bulletin boards, union and safety bulletin boards are located strategically throughout the plant and offices as another means of communication between management and workers.

Plant tours and *"open house"* help to acquaint the families of workers with the company. Company officials act as master of ceremonies at the annual S-W outings and parties in order to meet the families of various members.

Personal letters from the General Manager or Director of Employee Relations are mailed to each South Winder's home notifying him and his family if there are to be changes in company policies, negotiations or production and stating why.

A NOTE ON "SLICK" PERIODICALS FOR EMPLOYEES

By SIDNEY C. SUFRIN and ALFRED W. SWINYARD*

THIS note will consider the question, "What are the purposes and relevancies of magazine-like employee publications?"

To arrive at their conclusions, the authors undertook a study of a number of employee magazines issued recently by many companies, representing a broad cross-section of industry in the United States. From the periodicals studied, 25 were selected—all issued by relatively large manufacturers. The majority (22) of the companies had branch plants. The remainder represent very large-scale American industry.

Technically, any one of the 25 magazines may be favorably compared to the more successful nation-wide newsstand magazines. Slick paper, excellent amateur or professional photography, attractive typography, handsome layout—indeed, all the mechanical and technical features—were praiseworthy. The publications varied from eight to 56 pages, the average number of pages being about 20 to 24.

AIM AND METHOD OF STUDY

The aim of the study was to determine the purpose and relevancy of the periodicals, however, rather than to examine their layout and technical qualities. Thus the 25 samples

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were examined to ascertain the major purposes which the editors hoped to accomplish. Obviously all material of this sort should be interesting and/or amusing, but interest and amusement are derivatives of contents. The contents, therefore, were analyzed in terms of three major questions:

1. Is the purpose of the magazine to "sell" the company to the employees? That is, through news stories, special articles, and photographs, was the object of the magazine to make the employee feel that the company was a good place in which to work?

2. Is the purpose of the magazine to develop an interest on the part of the employee by informing him and educating him as to the products manufactured by the company? This may be done on the technical level, by showing the technical intricacies of production, or it may be done on the social level by showing the uses of the products in industry or the home.

3. Is the purpose of the magazine other than those in the first two categories, and therefore might it be variously defined as, for example, general education of the employee, developing knowledge and interest in safety and health programs, or perhaps informing the employee about distinguished and interesting personalities in the organization?

All three questions carry the implication that the basic purpose of the magazine was to tighten the bond between the employee and the management.

OBJECTIVES OF PERIODICALS ANALYZED

Upon examination, it appears that *few if any of the periodicals have a single purpose.* The aim of a number of them fell into more than one category and therefore the total of purposes exceeds the number of magazines studied.

The periodicals which attempted to "sell" the company to the employee by stressing high wages or social services numbered only five. On the other hand, no less than 15 seemed to emphasize production information. Nine of the 15, however, stressed the technical aspect of production—that is, new machinery, new techniques of output, and other technical advances.

The purpose of 23 of the periodicals fell into a broad miscellaneous classification. About one-half (11) of the magazines devoted a great deal of space to personals, e.g., vacation pictures of employees, photographs of employees who had completed 25 years' service with the company, and, in some instances, mere lists of names of people who had done something of interest or who had long service with the organization. One periodical devoted almost its entire issue to good housekeeping within the factory. Two periodicals stressed health and safety, and individual magazines stressed such items as travelogues, human interest stories, and the like.

A more detailed analysis of the 25 periodicals was made in order to classify them in terms of the relevance of the contents to: (1) community problems; (2) union-company relations; (3) plant problems. In only two cases would the reader get the impression that the plants of the firms in question were located in communities. One of these was the journal of a single-plant corporation which had an editorial on the importance of the company to the community, and also featured a double page of photographs of the plant, depicting its physical place in the community. The other periodical had two articles showing that the industrial policy of the company was concerned with the well-being and efficiency of the communities in which its plants were located.

Only one of the 25 periodicals made mention of relations with the union. This single comment was a dispassionate, unbiased comment on union gains in a wage matter.

Notably absent was the practice of using the periodical as a vehicle to develop a desirable plant spirit by direct exhortation rather than by indirection through "selling" the company as a good place to work and by emphasizing management interest in the employees. On the whole, this must be considered a sophisticated, purposeful omission, since a periodical competing with other non-plant periodicals for the interest of the readers would lose if it became a vehicle of sermonizing or exhortation. On the other hand, the attempt to maintain reader interest was in many instances based on the thin reed of personals, jokes or paragraphs purporting to be witty.

The contents of the magazines examined in the study may be roughly divided into two categories: The first category consists of photographs and articles of general interest, e.g., discussions of new technical devices, vacation resorts, hints on industrial housekeeping, and

so on. The other general category comprises personal items which, for the employees of a large plant or multi-plant firm, must be of relatively minor interest except to the person whose picture is shown or whose name is mentioned and his friends, associates, and family.

SOME SUGGESTIONS

It would seem there is a third and neglected category which would consist of articles and pictures more directly concerned with human (employee) interest, such as welfare, pleasure, and employment opportunities within the plant-community complex. To make the magazines of more direct interest to employees, it is suggested that the role of magazines versus employee newspapers stressing more current items should be more clearly defined than is presently the case. For example, one magazine reproduced two wedding pictures, one six months old and one eight months old—not new enough to be current, yet hardly old enough to be historical!

Large concerns might well consider the wisdom of issuing slick-paper, technically proficient periodicals addressed to particular plants or at least to plants in limited areas. If the cost of issuing more than one such periodical is prohibitive, consideration should be given to putting out less expensive papers which, however, because of their limited and more current coverage, would be of enhanced interest to the employees.

Appraising an Organization's Leadership

IT is axiomatic that an organization can be no better than its leadership. Following are 18 tests for measuring a leader, developed by Carl F. Braun, president, Carl F. Braun & Co., as listed in *Modern Industry*:

1. Do we like him, like to have him around, find him restful to be with? Or does he stir up resentment by untactful criticism, by pushing himself forward too much, or by other inconsiderate conduct?
2. Does his eye seem to be fixed chiefly on his job and on the welfare of his people? Or is he concerned rather about himself and his own welfare?
3. Does he work well with other leaders? Or does he have a tendency to work in a corner?
4. Does he run his job? Or does it run him? Does he take the proper time for organizing the work? Or does he simply attend to the daily things that press upon him?
5. How well does he organize the work of his group *in writing?*
6. Is his ability to write in keeping with his job?
7. Is he good at presentation in general?
8. Does he have the qualities of a good teacher, imagination among them? And is he consistently developing these, and applying them?
9. How well does he maintain discipline? Remove the unfit?
10. How much studying does he do relating to the purposes of his department?
11. How much studying does he do relating to general social problems—as covered, say, by psychology, sociology, ethics, economics, philosophy, and such other social sciences as apply to our work?
12. Does he have a natural sympathetic understanding and interest in people—in individual people and their needs and problems?
13. Does he have the enthusiasm and other qualities that create an atmosphere of interest and friendliness—an atmosphere that promotes spontaneous cooperation and effort?
14. Does he have the qualities of calmness, stability, steadiness, and fairness—qualities that invite confidence, that enable his men to work without confusion, apprehension, or distrust? Or does he tend to go to extremes? Or, by a too-nervous activity, keep people in confusion and unrest?
15. Does he have a good sense of proportion, distributing his time, his interest, and his sympathy fairly over his whole job? Or is he prone to favoritism either toward work or people?
16. Can he think clearly and justly, and without undue emotion?
17. Does he have imagination for new possibilities, improved means, better methods? Or does he just follow the rut?
18. Does he have the ability to make decisions on insufficient evidence, and the faith to act on probabilities?

THE CONTRACT QUESTIONNAIRE

By SAMUEL A. POND
Labor Relations Superintendent
and
ROBERT W. O'KEEFE
Labor Relations Representative
Pacific-Alaska Division
Pan American World Airways System

Since successful union-management relations depend to no small degree on how supervisors apply the terms of the labor contract to their daily operating problems, it is essential to train the supervisory staff in the contents of the agreement. Here is a description of an effective and palatable method of providing such training.

HOW do you make the supervisor "contract conscious"? How do you get him to say, "Maybe I'd better take a quick look at the agreement," when he's faced with an operating problem? How do you instill within him the idea that the labor agreement is a management tool that he must learn to use wisely and well? These, and others like them, are the questions faced again and again by staff personnel anxious to assist the line supervisor in his job performance.

A union agreement is negotiated which in broad terms outlines the rules under which an employee works. In the average business, however, only a small nucleus of people is intimately familiar with its contents. And this small nucleus is not the group faced with the responsibility of administering the contract, of pulling it out of a back pocket day after day and saying, "What do we do now?" So a meeting is called, and all the supervisors are gathered together, and the contract explained paragraph by paragraph. Management then sits back and says, "Now we have all been indoctrinated. Everyone knows what's in the contract. Let's go to work."

It won't work! There is too much left unsaid in any collective bargaining agreement—too much in the way of current company policy or contractual precedent that must be considered. The absence of a "grass roots" contractual problem makes for lack of attention on the part of the conferees. The meeting may well boil down to a bare recital of clause after clause in the agreement.

In common with other firms, the Pacific-Alaska Division of Pan American Airways, Inc., has faced this problem. A technique has recently been developed which may well be of value to others because of the keenness of interest aroused within the supervisory group. It is the Quiz Program approach and involves the use of a contract questionnaire which can best be described as follows:

1. *Contents*

The questionnaire is in two parts: Part I consists of 10 "fill-in" questions, designed to elicit those facts in the contract that each supervisor must know. Part II comprises 40 "true or false" questions. (For illustration, some excerpts from the questionnaire covering the mechanics' agreement are contained in the Appendix, pages 305-6.) An effort is made in both sections of the questionnaire:

(1) to bring out the accepted interpretation of possibly controversial questions, or (2) to point up the decisions of "Boards of Adjustment" established by contract. Some questions are loosely worded by intent so as to raise questions in the mind of the reader. All are designed to stimulate inquiry beyond the scope of the immediate question.

2. *Purpose*

The purpose of the questionnaire is solely to serve as an educational medium. It seeks to make each supervisor aware of the contents and complexities of contract administration. It shows him that frequently the answer to a problem cannot be found by directly turning to Article X, Page Y, but must be solved by consideration of several applicable clauses as well as company policy or precedent.

The instructions preceding the questionnaire carefully spell out that the scoring of the questionnaire is unimportant. No attempt is made to find out or record the score of a particular individual. The purpose is to educate, not to ferret out supervisory weaknesses.

3. *How Administered*

A small group of supervisors (not more than 10 to 20) is gathered together. The purpose of the test is carefully explained by the conference leader, usually a representative of the Industrial Relations Department. Copies of the union agreement are made available for those who wish to check their memories, although participants are urged to go through the test first, without reference to the contract and then, if time allows, to check the agreement.

Approximately one-half hour is allotted to completion of the test and two to three hours to the ensuing discussion. Each supervisor in turn reads a question aloud and gives his answer. The pros and cons are then taken up by the group as a whole, the discussion being led by the conference leader. The "moral" of each question is summed up after discussion so as to leave the answer to each question clearly fixed in the mind of each participant.

4. *Conclusions*

The group discussions were lively affairs; heated and healthy exchange of ideas took place as differences of opinion became evident. Areas of ignorance of contractual matters were discovered which had not been previously apparent. A typical reaction was, "I had no idea there were so many angles to a union contract." The consensus of opinion was that this technique was a valuable tool in supervisory training for existing contracts, and for such contractual changes as might occur in the future.

APPENDIX

EXCERPTS FROM QUESTIONNAIRE—MECHANICS' AGREEMENT

INSTRUCTIONS

1. *Read each question carefully.* There are no "trick" ones, but the wording and intent of each should be clearly understood.
2. *Do not guess.* Scoring will be plus one for each question answered correctly; minus one for each answered wrong.
3. *Do not concern yourself with the score you make.* No one will know what it is, although a record will be kept of the scoring of the whole group.

4. *Make notes as you go along.* Each question will be discussed later, so note anything not clear to you for future clarification.

PART I

1. Except in emergencies, at least ..... days' notice shall be given by the Company when changes in hours or assignments to shifts are deemed necessary by the Company.
2. An employee called back to work for a period not continuous with his regular tour of duty shall be paid at overtime rates for not less than ..... hours.
3. Except in emergencies, an employee who is required to work on his holiday shall be notified ..... days in advance of such holiday.
4. Seniority rights of employees laid off shall terminate if they are not rehired within ..... months after layoff.
5. When the Company desires to transfer employees from one shop to another, such bids shall be posted for ..... days.

PART II

Indicate True or False (T) or (F)

1. This Agreement is binding upon the Company and the Union in
   (a) Continental U. S. _____
   (b) Tokyo _____
   (c) Alaska-Honolulu _____
   (d) Guam _____
2. The Agreement requires that the Company and the Union must agree as to how often shifts are to be rotated. _____
3. An employee receives premium pay for hours worked either before or after his regular scheduled hours, even though he has not worked eight (8) hours during the workday. _____
4. Before an employee can receive premium pay, he must work at least eight (8) hours in any one workday. _____
5. An employee receives premium pay for working on Sunday which is not his regular day off. _____
6. An employee does not come to work one of his regular workdays but does work on his first regular day off. He should receive premium pay on this first regular day off, even though prior to this day he has only worked four (4) days during the regular workweek. _____
7. An employee works six (6) days in a row as a result of the Company changing his shift. He should receive premium pay on the sixth day worked. _____
8. An employee who is required to come in two hours early may be required to suspend work two hours before the end of his shift. _____
9. An employee comes to work four hours late, and then is directed to work for 10 hours. He should receive double time for the last two hours he works. _____
10. An employee is directed to work 11 hours on the sixth day worked in his workweek. He should receive time and one-half his base rate for these 11 hours. _____

TECHNIQUES OF SECURING AGREEMENT IN JOB EVALUATION COMMITTEES

By EDWARD N. HAY*

One of the most difficult operating problems in job evaluation is that of harmonizing differences among the raters, of reaching satisfactory decisions in evaluation committees and yet avoiding reluctant concessions. Outlined here are a number of tested techniques to facilitate agreement in evaluation meetings.

"TWO heads are better than one" is a particularly sound axiom in evaluating jobs, because job evaluation, or job rating, is greatly dependent on the judgment of the raters. It is therefore important to surround job rating with every precaution to assure the free and effective operation of group judgment. The first thing to do is to have the rating performed by several trained people. In the installation of job evaluation the ratings should be made by a minimum of four persons. There are several reasons why the number might exceed this, preferably range from six to 10. One is the advantage of departmental participation. Another is the training that it gives those members of the supervising staff who will have to assist in the administration of wages and salaries.

The statements made here are based on 15 years' experience in setting up evaluation plans for wage and salaried groups and, more recently, for high-salaried executive and technical jobs. They are made from the viewpoint of factor comparison job evaluation but are also applicable to point and other methods. In the factor comparison method, the element of judgment rests with those who rate the jobs. Consequently every means must be employed to improve this judgment. Under point systems, the judgment element is divided between the person who designed the plan—selected the factors and defined and weighed them—and those who rate the jobs.

In securing the advantages of group judgment, it is essential that each member of the group be required to do his own job rating in advance of the meeting. If ratings are made in open meeting, carelessness and indifference are certain to develop. The dominant member of the group will influnce some of the others, and the lazy ones will accept guidance from the member whose jobs are under consideration, usually on the ground that "Bill knows these jobs—why don't we accept his judgment?" However, it is not intimate knowledge of the jobs that is most important but judgment of their *relative values*. The hard part of job evaluation is not rating the jobs you know well but linking together *all* jobs—those you know and those you are unfamiliar with. Job descriptions are furnished to overcome lack of personal familiarity with jobs. Consequently, it has been found best to require each member to perform his own individual evaluations and report them in writing to the secretary of the committee the day before the meeting. At the meeting each member is presented with a summary of the ratings of all members (shown in Figure I). The aim is to discuss the differences among the ratings and reach agreement on the ones which represent the best judgment of the entire group.

The discussion which follows describes the techniques which have been found helpful to the chairmen of evaluation meetings in bringing about agreement in

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SUMMARY OF INDIVIDUAL EVALUATIONS

September 1, 1949

HE-	1	3	4	5	6	7	8	9	10	11
MENTAL										
Carroll	25	22	12	14	10	14	10	10	14	14
Holland	25	22	14	14	10	19	10	10	14	14
Hornkohl	25	22	10	19	10	19	10	10	19	(22)
McKee	22	19	10	19	10	19	10	10	14	14
Shroyer	22	16	12	16	12	16	10	12	16	12
Silvia	25	24	10	14	10	16	10	12	14	14
Welty	29	22	12	16	12	16	10	12	16	16
SKILL										
Carroll	66	57 <	38	43	33	(38)	33	38	43	38
Holland	76	57	38	43 >	33	50	33	38	38	38
Hornkohl	66	57	33	43	33	50	29	38	43	50
McKee	57 = "	50	33	50	33	43	38	38	43	43
Shroyer	~~57~~ "	50	33	43	33	43	33	38	43	38
Silvia	66	57 ||	29	43	33	50	29	33	38	43
Welty	76	66	38	50	33	(57) 2	38	38	43	50
RESPONSIBILITY										
Carroll	43	38	25	29	22	29	22	22	29	29
Holland	50	38	25	25	22	33	22	22	29	25
Hornkohl	43	33	22	29	22	33	22	22	25	29
McKee	33	29	22	29	22	25	22	22	25	25
Shroyer	43	33	22	33	25	33	22	25	33	29
Silvia	43	38	22	33	22	29	22	22	29	33
Welty	50	43	29	33	22	33	22	22	29	33
HE-	1	3	4	5	6	7	8	9	10	11

FIG. 1

committee. All illustrations are drawn from actual experience, usually quoted exactly as they occurred.

Not everyone makes an effective chairman. It takes a person with good "social skills," one who is adept at harmonizing differences. It also, necessarily, requires a substantial knowledge of the job evaluation process, though that is less important than skill in steering the committee members into an agreement with which they are satisfied. There must be no forcing of unwilling agreement. Majority votes, such as 5 to 4, or even 6 to 3 or 7 to 2, are to be avoided; they evoke too many after-criticisms which will impair the long-range acceptance of the program. It is not unreasonable, however, to expect members who differ from the large majority by only one interval on the evaluation scale to "go along" with the overwhelming majority. In one company the rule was agreed upon that if, *after full discussion,* 80 per cent or more of the members concurred on one value and the rest were not more than one interval higher or lower, the minority would "go along." If there is strong conviction on the part of even one of the minority group that the majority

choice is wrong, then the decision should be postponed until the next meeting, at which time the minority member would have the opportunity to present his views again, perhaps with additional facts or better logic.

THE MOST IMPORTANT TASK OF THE CHAIRMAN

The true function of the chairman of any evaluating committee is to facilitate an agreement by the group. This agreement must represent the best thinking of the members in the light of the discussion. This means that the original votes are not sacred. It implies that, while the trend of the original voting is strongly presumptive of the best value, discussion may effectively change the opinions of some members of the committee. The chairman should not have any stake in the result, so he must ignore his own ratings if he has made any. (In fact, it is better for him not to evaluate at all.)

The chairman and each committee member will be given the "Summary of Individual Evaluations" at the beginning of each session (Figure I). The following techniques, used in conjunction with the Summary, will help to secure effective agreement among committee members.

1. In some cases, before commencing discussion, it is desirable to ask, "In view of your discussion on other jobs, does anyone wish to change?" (See Job #11 —Mental 22 in Figure I.)

2. It is often advisable to get the discussion under way by requesting persons at the extremes to debate the issue with each other. This applies, of course, when there are one or more persons at extremes, with others in between. (See Job #7 —Skill—57 high, 38 low.)

EXAMPLES

a. Put the burden of discussion first on those holding extreme values.

b. In one situation this question was asked by the Chairman: "Bill, you are on the lower side this time. What can you tell us that will help the committee?"

c. When some members are extremely high or extremely low, and the rest in the middle, the chairman might ask: "Bill and George, you are on the ends. Will you debate your difference?"

d. When one member is on the extreme, the chairman might say, "George, you have a 12, so maybe you should start the ball rolling."

3. The chairman and, indeed, all members of the committee can keep close track of the trend of the discussion by placing symbols opposite the evaluations. Some symbols which have been found useful are illustrated in the following (see jobs 1-5):

EXAMPLES

a. This man was "going up" (<).

b. This man was "going down" (>).

c. This fellow said "I prefer 57 but could take 66" (=).

d. This man has changed his opinion and now wants 66 instead of 57 (66).

e. This man does not want to go higher or lower than 57 (//).

The advantage of these symbols is that they can be placed right on the sheet and give a perspective of the agreement at any instant. They obviate the need for any other paperwork. Such extra paperwork on other sheets tends to occupy too much attention of the chairman, whose real function is to be at all times sensitive to the trend of the discussion.

EXAMPLES

a. After a discussion—"Does that mean you would move up? (down?) or that you would take 38?"

b. "If you were going to change, which way would you go—up or down?"

c. This example actually occurred at a utility company on job AD-19: The chairman asked, "Riley, which way are you headed?" Riley replied "down." Then the chair-

RECORD OF COMPARISONS

SKILL

JOB	>		= >		=		= <		<		>		= >		=		= <		<		>		= >		=		= <		<	
HE 5	16	A19	16	A33	19	C18			22	H14	38	A19	43	C6	43	N2					25	A19			33	N2	33	C18	38	H14
			16	C6	//										//						29	C6			//					
			19	C12																										

man turned to another member and inquired, "Sylvia, which way are *you* headed?" Sylvia also replied "down." The chairman then said: "Then I guess we can all take a 9. O.K.?"

4. One of the greatest time-wasters in committee is a "windy" discussion. This may be a straying from the matter at hand or it may be only a long-winded, over-detailed discussion of the real issues. In any event, a good way to handle a "windbag" is to cut through the discussion with a direct question aimed at him or at another member of the group. But do not cut abruptly into long talkers; cut in at the end of a sentence so they cannot take offense

5. Sometimes several arguments will be going on simultaneously, or two members will be talking very quietly so as not to disturb the main discussion of the committee. This demoralizing situation must not be permitted lest the work of the committee get entirely out of hand. There is always a tactful way of cutting off the extra discussion. Not this way, "Charlie, let's have only one discussion going on at the same time" This is better: "Charlie, Bill is saying something down at this end of the table that you will want to hear."

6. Discussion will be more to the point if all committee members use a special form known as "Record of Comparisons" (Figure II). This permits the chairman to point up the discussion by asking a particular committee member, "What job have you compared with this one?" If Smith says, "I compared this job with #321 and think it is about the same," and others remark that they also compared it with #321 and that the skill of #321 was greater, then a hand vote is asked for after a little discussion. If the vote shows a strong majority against him, it will influence the fellow who is "off" more than mere argument would.

EXAMPLES

a. As you go along, compare new jobs with those in the rating manual.
b. Require *all* evaluators to keep a record of their comparisons so that they can help the discussion with specific comments.
c. If all but one person are agreed, and he insists on holding out, then he has the obligation of studying the job and at a future session of reviewing it (comparing it with other jobs) and making a thorough presentation to help the committee.

7. If discussion bogs down and no agreement is in sight, it is nevertheless inadvisable to try to force a minority of two or three persons to accept a majority opinion. The stalemate can often be broken by a deliberate reading of every duty of the job (with emphasis on the factors under consideration). On such occasions it sometimes helps if the *facts* about the job are presented by someone who knows it best—either a member of the committee from the department concerned, an analyst, or the head of the department (who would attend the session by invitation).

EXAMPLE

Try to avoid voting anyone down. If a member is not persuaded,
a. Ask if he will go along, or
b. Ask if there is any objection to the majority value, or
c. Ask if there is anyone who cannot go along with the majority's evaluation.

8. Next to directing the discussion into useful channels, the greatest skill required of the chairman is the ability to *sense the moment when agreement can be reached* and phrase a call for agreement in terms that will be most acceptable to the members who must make concessions.

EXAMPLES

a. "Have you any additional information to offer that would help us?"
b. Another way of handling it is for the chairman to ask: "Let's have a show of hands. How many prefer 50?" "How many *prefer* 43?" or "How many *can take* 43?"
c. When only one or two persons are out of step, the chairman might say "Let's not spend too much time on it" or "Can you go along with a 22, Bill?"

d. In calling for votes, the chairman might ask, "How many can take a 16?", etc.

e. "In the light of the discussion on the previous jobs, does anyone want to change his position on number 454?", or "Then, is everybody satisfied with 43?"

f. A form of question which will sometimes bring about quick settlement is "Can we all take 29?" Another one is, "Charlie, if you had to change your value, which way would you go, up or down?"

g. Do not ask questions that cannot be answered, such as: "What would you like?" or "How do you like 22?" Rather, "Will you all take 22—any objections?"

h. It is all right to say: "Bill, everyone else likes 38, so will you go along?" or

i. "You all seem to be headed for 38. Will you all take it?"

9. Don't embarass committee members with untactful questions or comments.

EXAMPLES

a. Do not single out anyone for criticism. "Bob, would it hurt your feelings too much to take 22?"

b. When Bill Smith was chairman, he often made untactful remarks, such as the one addressed to Harry Brown on job AD-36, "It looks like you are outnumbered, Harry." Another awkward comment was, "We are all at 22 except Tom."

The Quaker Meeting rule is a good one to follow; unless the views of the minority are exceedingly strong, they will "go along" even though not fully convinced. But if the lack of conviction extends to a strong belief that some other decision should have been reached, then the final conclusion of the committee should be postponed until additional argument has been heard. The object of the committee is to reach a decision that will "stick" and not one that is vulnerable to future doubts and criticisms.

BOOK NOTES

(Please order books directly from publishers)

114 CHECK POINTS ON HOW TO PREVENT GRIEVANCES. By Bleick von Bleicken and Carl Heyel. The National Foremen's Institute, Inc., Deep River, Conn., 1949. 34 pages. $1.00. A comprehensive outline, designed for executive self-analysis, of the factors surrounding the employment situation that may precipitate worker grievances. The check points are divided into 10 categories: Job Security, Job Opportunity, Employee Recognition, Fair Pay, Working Conditions, Job Interest, Personal Security, Direction and Leadership, Employee Activities, Community Facilities. The checklist covers not only the factors that are essential to employee satisfaction but also indicates a large number of desirable or optional steps that management can take to improve employee morale.

INDUSTRIAL ENGINEERING SURVEY. By Ralph M. Barnes. Industrial Engineering Report No. 101. College of Engineering, University of Iowa, Iowa City, 1949. 48 pages. This valuable study summarizes the results of the 1948 University of Iowa survey of industrial engineering practices, conducted among 89 firms throughout the United States. Also reviews the findings of a similar earlier survey, compares the two, and analyzes current trends. Contains contract clauses pertaining to time study, production standards, and wage incentives reproduced from union agreements obtained from survey participants.

INDUSTRIAL HEALTH DEPARTMENT FUNCTIONS AND RELATIONSHIPS: *A Quarter of a Century of Progress in Industrial Health Administration.* By C. O. Sappington, M.D. Medical Series Bulletin No. VIII. Industrial Hygiene Foundation, 4400 Fifth Ave., Pittsburgh 13, Penna., 1948. 98 pages. $2.00. This factual report in effect inventories industry's facilities, procedures, and policies for conserving human resources in the world of work. Indicates defects in industry's present health programs and offers constructive suggestions for their improvement. Supplies valuable "how" information useful to large and small companies alike.

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